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MASSACHUSETTS

# AGRICULTURAL EXPERIMENT STATION.

## INSPECTION OF

# Commercial Feed Stuffs.

BY

P. H. SMITH and J. C. REED.

This bulletin contains the analyses of commercial feed stuffs found in the Massachusetts markets during the year 1909 together with such comments as are called for by the results of the inspection. Topics of especial importance are weed seeds in feed stuffs, weight of sacked feeds, and complete rations for dairy stock. In addition will be found a tabulated list of the wholesale cost of feeding stuffs for the year.

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AGRICULTURAL EXPERIMENT STATION,
AMHERST, MASS.

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# Inspection of Commercial Feed Stuffs

By P. H. Smith* and J. C. Reed.

## INTRODUCTION.

**Extent of Work.** During the past year 946 samples of the various feeding stuffs found offered for sale in the Massachusetts markets were collected by the official inspector. These have been carefully examined and the results are herewith published in bulletin form.

**Observance of the Law.** Practically no misrepresentation was detected although in a number of instances feedstuffs lacked the guarantee and other information required by statute. Wherever dealers appeared to be particularly careless in this respect, the matter was put into the hands of an attorney for settlement, but, thus far, in every case, a satisfactory agreement has been made without resorting to the courts. In the future it is the intention to prosecute where dealers cannot be brought by less drastic means to comply with the law. The requirements of the Massachusetts law are simple and explicit and afford protection to the reputable dealer as well as to the consumer; therefore, the continued evasion of the law by a few dealers is inexcusable and should not be tolerated. Even though the letter of the law may be

*The writer wishes to acknowledge the valuable suggestions made by Dr. Lindsey and the assistance of Mr. G. H. Chapman, Assistant Botanist, for the microscopical work performed.

closely observed, the consumer is often misled as to the true value of a feed by extravagant advertisements, circulars, etc. While there is no provision in the statute covering this matter, the consumer can easily avail himself of the privilege of obtaining the opinion of the experiment station as to the value of any feeding stuff.

**Federal and State Law.**

The extent to which the National Pure Food law aids in preventing adulteration and misrepresentation where feeds enter into interstate commerce, is perhaps not known and appreciated as it should be. When it is believed that a dealer is offering an adulterated article in good faith and is entirely ignorant of its true nature, cooperation between state and federal officials may lead to the prosecution of the party responsible for placing the article on the market. In this way the federal law can be of great assistance to those engaged in local control work, but this fact should not be taken to indicate that the responsibility of the retailer is any less, and he should use every means at hand to acquaint himself with the character of the goods he is handling.

**Use of Low Grade Products.**

On account of our increasing population and prevailing high prices, it is becoming more and more necessary to utilize all by-products having any substantial food value in the feeding of our domestic animals. While screenings, weed seeds, oat hulls, corn cobs, cottonseed hulls, and other low grade material may contain some nutriment, the foregoing statement should not be taken to indicate that a compounded feed containing one or more of these materials together with some high-grade concentrate is just as valuable as the high-grade concentrate itself. Where such a mixture is offered at its face value and no misrepresentation attempted, it is certainly a legitimate article of trade and should be so recognized. The writer firmly believes, however, that in order that the consumer may purchase intelligently, the ingredients going to make up a compounded feed should be stated on each package; but no legislation absolutely prohibiting the sale of low grade material should be enacted except in cases where it can be shown that certain kinds of material are poisonous or injurious to the animal.

**Protein vs. Carbohydrates.** Many manufacturers claim that the experiment stations place too much emphasis upon the value of protein and too little emphasis upon the value of carbohydrates. This station has never questioned the value and necessity of liberal amounts of carbohydrates in the ration. The question is rather an economic one, especially for the New England feeder who, under our climatic conditions, can easily produce a sufficient quantity of carbohydrates and must depend largely upon purchased protein to balance or round out the ration, particularly in the feeding of dairy animals.

**Uniform Feed Law.** It was the writer's pleasure to attend, during September, a conference between a committee of the American Feed Manufacturers' Association and state control officials, held at Washington in the interests of a uniform feed stuffs law. The decision of the conference was that such a law should be as simple as possible, and that a buyer of any feed stuff should be informed on the following points: —

1. The number of net pounds in the package.
2. Name, brand or trade-mark.
3. Name and principal address of the manufacturer or jobber responsible for placing the commodity on the market.
4. Its chemical analysis expressed in the following terms: —
   - *a.* Minimum percentage of crude protein.
   - *b.* Minimum percentage of crude fat.
   - *c.* Maximum percentage of crude fiber.
5. If a compounded or mixed feed, the specific name of each ingredient therein.

The Massachusetts law does not require a guarantee of fiber or a statement of ingredients in a compounded feed, and it is felt that in the near future the present law should be amended to include these statements.

## STANDARDS FOR CATTLE AND POULTRY FOODS.

A standard for comparison is always necessary in passing judgment on the composition of concentrated feeds. The percentages of protein, fat and fiber **serve as an index** of their character in the majority of cases. To be of **standard quality,** the various concentrates should be free from foreign material, mould and rancidity, in good mechanical condition, and maintain the following percentages of protein, fat and fiber : — *

| | Feed Stuff. | Protein. | Fat. | Fiber. |
|---|---|---|---|---|
| *Protein Feeds.* | *Blood Meal* | 85 | 0.2 | — |
| | *Cottonseed meal (choice)* | 41-46 | 8-10 | 7 |
| | *Cottonseed meal (prime and good)* | 36-41 | 7-9 | 8 |
| | *Cottonseed meal (low grade)* | 24 | 5-6 | 18 |
| | *N. P. linseed meal* | 38 | 2 | 9 |
| | *O. P. linseed meal* | 32 | 6 | 9 |
| | *Gluten feed* | 25 | 3 | 7.5 |
| | *Distillers' dried grains (corn)* | 32 | 10 | 12 |
| | *Malt sprouts* | 25 | 1 | 12.5 |
| | *Brewers' dried grains* | 22 | 5 | 12 |
| | *Wheat middlings (flour)* | 18-20 | 5 | 3.5 |
| | *Wheat middlings (standard)* | 17-19 | 5 | 7 |
| | *Wheat mixed feed* | 16-18 | 4.5 | 8.5 |
| | *Wheat bran* | 15-17 | 4.5 | 10 |
| | *Oat middlings* | 17 | 7 | 2.5 |
| | *Rye feed* | 15 | 3 | 4 |
| *Starchy (Carbohydrate) Feeds.* | *Ground oats* | 11 | 4 | 10 |
| | *Ground wheat* | 11 | 2 | 3 |
| | *Barley meal* | 11 | 1.5 | 6 |
| | *Rye meal* | 10 | 1.5 | 2 |
| | *Corn meal* | 9 | 3 | 2 |
| | *Hominy meal* | 10 | 7.5 | 4.5 |
| | *Provender* | 10 | 3.5 | 6 |
| | *Corn and oat feed* | 8-10 | 3-5 | — |
| | *Fortified oat feed* | 12-14 | 3-5 | — |
| | *Oat feed* | 5-8 | 2 | 20-26 |
| | *Corn bran* | 9 | 5 | 10 |
| | *Dried beet-pulp* | 8 | 0.3 | 18 |
| *Poultry Feeds.* | *Meat scraps* | 50 | 15 | — |
| | *Meat and bone meal* | 40 | 10 | — |
| | *Bone meal* | 25 | — | — |
| | *Poultry mash and meal* | 15 | 4-5 | — |
| | *Chick and scratching grains* | 10 | 3 | — |
| | *Alfalfa meal, entire plant* | 14 | 1.5 | 25 |
| | *Clover meal, entire plant* | 12 | 2 | 25 |

* Fiber is the least valuable of the several constituents; the above standards for fiber represent the maximum percentage which the feed should contain to be of standard quality.

# CHEMICAL ANALYSES OF FEED STUFFS.

*1909 Collection.*

## I. Protein Feeds.

### COTTONSEED MEAL.

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| Choice. | | % | % | % | % | % |
| **American Cotton Oil Co., New York.** | | | | | | |
| Choice,.....N. Hatfield Grain Co.. | N. Hatfield.... | 41.99 | 41.00 | 8.00 | 9.00 | 6.42 |
| Choice,.....P. W. Eaton & Co. ... | Williamstown . | 43.75 | 41.00 | 8.34 | 9.00 | — |
| **H. E. Bridges & Co., Memphis.** | | | | | | |
| A. T. Butler..... | Adams ..... | 42.73 | 41.00 | 10.33 | 7.00 | 5.80 |
| D. McCarthy..... | Turners Falls.. | 41.11 | 41.00 | 8.67 | 7.00 | 6.62 |
| P. W. Eaton & Co. ... | Williamstown.. | 41.24 | 41.00 | 8.06 | 7.00 | — |
| **F. W. Brode & Co., Memphis.** | | | | | | |
| Owl, .....P. Foisy..... | New Bedford.. | 41.85 | 41-43 | 10.12 | 7-9 | 6.82 |
| **Buckeye Cotton Oil Co., Cincinnati, Ohio** | | | | | | |
| High Grade,.....Pierce & Winn ..... | Arlington..... | 41.47 | 41.00 | 9.50 | 8.00 | 6.81 |
| Buckeye, .....R. W. Davis..... | Greenfield .... | 41.24 | 39-41 | 7.20 | 6.5-7 | — |
| Buckeye, .... ...Dennison Plummer Co. | New Bedford.. | 43.00 | 39-41 | 8.53 | 6.5-7 | — |
| **T. H. Bunch, Little Rock, Ark.** | | | | | | |
| Old Gold, .....Cutler Grain Co..... | S. Framingham | 42.20 | 41.00 | 9.90 | 9.00 | — |
| **Chapin & Co., Boston.** | | | | | | |
| Green Diamond,..F. E. Smith ..... | Amherst..... | 43.13 | 41.00 | 9.60 | 9.00 | 5.31 |
| Green Diamond...Evans & Bowker..... | Baldwinsville . | 43.48 | 41.00 | 8.23 | 9.00 | — |
| Green Diamond...C. A. Pierce ..... | Hinsdale ..... | 42.00 | 41.00 | 9.07 | 9.00 | 5.89 |
| **Florida Cotton Oil Co., Jacksonville, Fla.** | | | | | | |
| E. F. Wilbur & Son... | Mansfield ..... | 42.64 | 38.50 | 8.35 | — | 5.91 |
| **J. B. Garland & Son, Worcester.** | | | | | | |
| Golden Eagle, ....C. Bond..... | Charlton ..... | 44.40 | 41.00 | 9.30 | 9.00 | — |
| Golden Eagle, ....G. P. Rogers ..... | Worcester .... | 43.09 | 41.00 | 8.23 | 9.00 | — |
| Golden Eagle, ....J. B. Garland & Son .. | Worcester .... | 43.96 | 41.00 | 9.33 | 9.00 | 4.86 |
| **Humphreys, Godwin & Co., Memphis.** | | | | | | |
| Dixie,.....W. J. Meek..... | Fall River .... | 41.20 | 41.00 | 8.41 | 8.00 | — |
| Dixie,.....J. A. Sullivan ..... | Northampton . | 41.38 | 41.00 | 9.05 | 8.00 | 6.59 |
| Dixie,.....H. C. Puffer Co..... | Springfield .... | 41.59 | 38.5-43 | 8.07 | 7-9 | — |
| **Hunter Bros. Milling Co., St. Louis.** | | | | | | |
| Prime, .....Mackenzie & Winslow | Fall River .... | 43.57 | 41.00 | 7.87 | 9.00 | 5.59 |
| Prime, .....N. Paquin & Sons.... | Fall River .... | 43.43 | 41.00 | 8.23 | 7.50 | 5.38 |
| Prime, .....J. Cushing Co..... | Hudson ..... | 41.94 | 41.00 | 8.31 | 7.50 | 5.88 |
| Prime, .....W. H. Smith ..... | Northampton.. | 43.65 | 41.00 | 8.76 | 7.50 | 5.03 |
| Prime, .....C. H. Symmes..... | Winchester ... | 41.85 | 38.50 | 8.16 | 8.00 | 7.25 |
| Prime, .....J. B. Garland & Son .. | Worcester..... | 43.13 | 41.00 | 8.82 | 7.50 | — |

## COTTONSEED MEAL—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **Rome Oil & Fertilizer Co., Rome, Ga.** | | | | | | |
| Cherokee, .....W. H. Potter & Sons . | N. Adams .... | 42.05 | 41-43 | 6.32 | 7-9 | — |
| **J. E. Soper Co., Boston.** | | | | | | |
| Choice Bolted,....J. N. Waite..... | Easthampton .. | 41.24 | 40-42 | 8.80 | 7-9 | — |
| Choice,.....J. Cushing & Co. ..... | Hudson ..... | 44.71 | 41.00 | 8.33 | 8.00 | — |
| Fancy,.....A. D. Potter..... | Orange..... | 43.70 | 43.00 | 9.09 | 9.00 | — |
| E. A. Cole..... | Housatonic ... | 43.87 | 41.00 | 8.48 | 8.00 | — |
| **Southern Cotton Oil Co., Memphis.** | | | | | | |
| Prime, .....F. Diehl..... | Wellesley ..... | 43.22 | 41.00 | 7.67 | 7.00 | — |
| Highest ..... | ..... | 44.71 | — | 10.33 | — | 7.25 |
| Lowest..... | ..... | 41.11 | — | 6.32 | — | 4.86 |
| Average..... | ..... | 42.62 | — | 8.60 | — | 6.01 |
| Medium Grade. (Prime and Good). | | | | | | |
| **American Brokerage Co., Memphis.** | | | | | | |
| Eagle, .....G. C. Turner ..... | Chester ..... | 39.57 | 41.00 | 8.39 | 9.00 | 7.16 |
| **American Cotton Oil Co., New York.** | | | | | | |
| Choice, .....H. G. Hill Est. ..... | Williamsburg.. | 38.75 | 41.00 | 8.34 | 9.00 | 8.85 |
| **F. W. Brode & Co., Memphis.** | | | | | | |
| Owl, .....C. H. Smith ..... | Dighton ..... | 40.80 | 41-43 | 12.17 | 7-9 | 5.00 |
| Owl, .....D H. Craig..... | Plymouth..... | 39.40 | 41-43 | 10.84 | 7-9 | 6.88 |
| **T. H. Bunch, Little Rock, Ark.** | | | | | | |
| Old Gold, .....W. N. Potter & Sons.. | Charlemont.... | 39.62 | 41.00 | 11.19 | 9.00 | — |
| Old Gold, .....A. Milot & Son ..... | Taunton..... | 39.92 | — | 10.42 | — | 8.17 |
| **J. B. Garland & Son, Worcester.** | | | | | | |
| Golden Eagle,....F. Diehl & Son ..... | Wellesley ..... | 40.41 | 41.00 | 7.00 | 9.00 | 8.73 |
| **Humphreys, Godwin & Co., Memphis.** | | | | | | |
| *Dixie,.....J. E. Merrick & Co. .. | Amherst..... | 37.03 | 38.5-43 | 6.55 | 7-9 | — |
| Dixie,.....G. F. Greene Coal Co.. | Campello ..... | 40.76 | 41.00 | 7.63 | 8.00 | 7.91 |
| Dixie,.....W. J. Meek..... | Fall River .... | 40.94 | 41.00 | 7.01 | 8.00 | 8.07 |
| *Dixie,.....Warner Bros. ..... | Sunderland.... | 39.36 | 38.5-43 | 8.12 | 7-9 | — |
| **Hunter Bros. Milling Co., St. Louis.** | | | | | | |
| Prime, .....W. E. Bryant Co. .... | Brockton ..... | 40.23 | 38.50 | 7.46 | 6.50 | 8.22 |
| Prime, .....C. B. Benedict..... | Gt. Barrington. | 38.21 | 38.50 | 7.37 | 8.00 | 9.14 |
| Prime, .....Mackenzie & Winslow. | Fall River .... | 38.08 | 41.00 | 8.49 | 7.50 | — |
| Prime, .....J. Cushing & Co. ..... | Fitchburg ..... | 40.18 | 38.50 | 8.39 | 8.00 | 8.06 |
| **McCaw Manufacturing Co., Macon, Ga.** | | | | | | |
| Prime, .....J. W. Doon..... | Natick ..... | 40.41 | 39.00 | 7.03 | 9.00 | 7.66 |
| Prime, .....Taunton Flour & Gr.Co | Taunton..... | 38.36 | 39.00 | 6.86 | 9.00 | 9.44 |
| **Blackstone Smith, New Orleans, La.** | | | | | | |
| Purity, .....Webster Grain Co.... | Lawrence ..... | 40.93 | 41.00 | 8.73 | 5.00 | 9.44 |
| Purity, .....Highland Mills..... | NewtonHigh'ds | 38.57 | 41.00 | 6.72 | 5.00 | 9.74 |

* Meal sold on a basis of 41 per cent protein and refund has been made to retailers, according to rules of Interstate Cotton Crushers Association.

## COTTONSEED MEAL—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| **J. Lindsay Wells Co., Memphis, Tenn.** | | % | % | % | % | % |
| Star, .....J. W. Raymond ..... | Concord..... | 38.52 | 41.00 | 7.07 | 9.00 | 9.17 |
| Star, .....Knight Grain Co..... | Newburyport.. | 39.14 | 41.00 | 7.11 | 9.00 | 9.33 |
| Highest ..... | ..... | 40 94 | — | 12.17 | — | 9.74 |
| Lowest ..... | ..... | 37.03 | — | 6.55 | — | 5.00 |
| Average..... | ..... | 39.49 | — | 8.23 | — | 8.29 |
| Low Grade. | | | | | | |
| **Florida Cotton Oil Co., Jacksonville, Fla.** | | | | | | |
| Ropes Bros..... | Salem ..... | 24.57 | 25.75 | 6.70 | 5.00 | 15.79 |
| Durham, .....Jaquith & Co..... | Woburn..... | 23.08 | 25.75 | 6.79 | 5.00 | 15.91 |

## LINSEED MEAL.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. New Process. | | | | | | |
| **American Linseed Co., Chicago.** | | | | | | |
| Cleveland Flax,...Ropes Bros..... | Salem ..... | 34.61 | 36-40 | 3.17 | 1-3 | — |
| Cleveland Flax,...Ropes Bros..... | Salem ..... | 40.14 | 36-40 | 2.82 | 1-3 | — |
| W. L. Palmer..... | Medway..... | 36.95 | 36-40 | 3.11 | 1-3 | — |
| Bryant & Soule ..... | Middleboro ... | 38.12 | 36-40 | 3.40 | 1-3 | — |
| Dennison Plummer Co. | New Bedford.. | 36.95 | 36-40 | 4.37 | 1-3 | — |
| Average ..... | ..... | 37.35 | — | 3.37 | — | — |
| 2. Old Process. | | | | | | |
| **American Linseed Co., New York.** | | | | | | |
| N. Paquin & Sons .... | Fall River .... | 36.15 | 32-36 | 5.75 | 5-7 | — |
| N. Paquin & Sons .... | Fall River .... | 35.15 | 32-36 | 5.58 | 5-7 | — |
| J. Cushing Co ..... | Fitchburg ..... | 37.73 | 32-36 | 5.04 | 5-7 | — |
| Cummings, Chute & Co | Woburn ..... | 36.42 | 32-36 | 5.49 | 5-7 | — |
| **Kelloggs & Miller, Amsterdam, N. Y.** | | | | | | |
| W. N. Potter & Sons.. | Greenfield .... | 38.00 | 33-37 | 6.76 | 5-7 | — |
| W. N. Potter & Sons.. | Gardner ..... | 34.01 | 33-37 | 6.33 | 5-7 | — |
| **Guy E. Major Co., Toledo, Ohio.** | | | | | | |
| J. B. Garland & Son .. | Worcester .... | 31.24 | 30-36 | 5.27 | 5-7 | — |
| **Mann Bros. & Co., Buffalo, N. Y.** | | | | | | |
| A. E. Lawrence & Son. | Ayer ..... | 37.38 | 34-37 | 7 40 | 6-7 | — |
| J. Cushing Co ..... | Fitchburg ..... | 33.87 | 34-37 | 6.90 | 6-7 | — |
| J. Loring & Co..... | Watertown .... | 37.55 | 34-37 | 6.88 | 6-7 | — |
| **Metzger Seed & Oil Co., Toledo, Ohio.** | | | | | | |
| J. F. Ray..... | Franklin ..... | 35.87 | 30-36 | 6.46 | 5-7 | — |
| J. F. Ray..... | Franklin ..... | 37 29 | 30-36 | 6.77 | 5-7 | — |
| Average..... | ..... | 35.89 | — | 6.22 | — | — |

## FLAX FEED.

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **H. Jennings, Boston.** | | | | | | |
| J. W. Doon & Son.... | Natick ..... | 16.72 | 16.00 | 14.34 | 14.00 | — |
| J. W. Doon & Son.... | Natick ..... | 17.64 | 16.00 | 15.95 | 14.00 | — |
| A. Altman..... | New Bedford.. | 16.41 | 16.00 | 13.17 | 14.00 | — |
| W. F. Fletcher ..... | Southwick..... | 15.36 | 16.00 | 11.02 | 14.00 | 13.83 |
| G. H. Reed..... | West Acton.... | 15.44 | 17.34 | 10.93 | 17.37 | — |
| **New Occidental Milling Co., Minneapolis.** | | | | | | |
| Superior, .....W. F. Fillmore ..... | Palmer ..... | 16.14 | 16.00 | 8.42 | 14.00 | 8.03 |
| Average..... | ..... | 16.29 | — | 12.31 | — | — |

## GLUTEN FEED.

| | | | | | | |
|---|---|---|---|---|---|---|
| **American Maize Products Co., New York.** | | | | | | |
| Cream of Corn,...F. G. Morey ..... | Billerica ..... | 25.45 | 23-25 | 3.69 | 2.50 | — |
| Cream of Corn,...Prentiss, Brooks & Co. | Easthampton .. | 24.35 | 23-25 | 3.41 | 2.50 | — |
| Cream of Corn,...J. F. Ray ..... | Franklin ..... | 25.98 | 23-25 | 2.47 | 2.50 | — |
| Cream of Corn...Curley Bros..... | Wakefield..... | 28.22 | 23-25 | 2.25 | 2.50 | — |
| Cream of Corn,...Prentiss, Brooks & Co. | Westfield ..... | 27.56 | 23-25 | 2.64 | 2.50 | — |
| Cream of Corn,...J. B. Garland & Son... | Worcester .... | 27.29 | 23-25 | 2.79 | 2.50 | — |
| Average..... | ..... | 26.48 | — | 2.88 | — | — |
| **Clinton Sugar Refining Co., Clinton, Ia.** | | | | | | |
| Clinton, .....W. E. Bryant & Co .. | Brockton ..... | 23.87 | 23.00 | 3.77 | 3.00 | — |
| Clinton, .....E. A. Wilbur & Son .. | Mansfield..... | 24.74 | 23.00 | 4.21 | 3.00 | — |
| **Corn Products Mfg. Co., New York.** | | | | | | |
| Buffalo, .....G. F. Greene Coal Co . | Campello ..... | 25.05 | 23-25 | 1.74 | 2.5-3 | — |
| Buffalo, .....Griffen Bros..... | Fall River .... | 28.32 | 23-25 | 2.54 | 2.50 | — |
| Buffalo, .....N. Paquin & Sons .... | Fall River .... | 28.65 | 23-25 | 2.50 | 2.50 | — |
| Buffalo, .....J. Cushing & Co..... | Fitchburg ..... | 28.08 | 23-25 | 1.92 | 2.50 | — |
| Buffalo, .....J. Cushing & Co ..... | Fitchburg ..... | 28.34 | 24-27 | 3.70 | 2.50 | — |
| Buffalo, .....W. N. Potter Sons Co. | Hadley..... | 26.76 | 23-25 | 2.55 | 2.50 | — |
| Buffalo, .....Howard & Smith ..... | Hatfield ..... | 25.66 | 23-25 | 2.88 | 2.50 | — |
| Buffalo, .....W. R. Ross Co..... | Holyoke..... | 24.04 | 23-25 | 2.78 | 2.50 | — |
| Buffalo, .....Conant & Co ..... | Littleton ..... | 28.61 | 23-25 | 2.82 | 2.50 | — |
| Buffalo, .....Marlboro Grain Co ... | Marlboro ..... | 26.81 | 23-25 | 1.83 | 2.50 | — |
| Buffalo, .....Thorne Bros. ..... | Millis ..... | 26.81 | 23-25 | 2.97 | 2.50 | — |
| Buffalo, .....City Mills Co..... | Northampton . | 28.67 | 24-27 | 3.47 | 2.50 | — |
| Buffalo, .....A. Culver Co..... | Rockland..... | 27.86 | 23-25 | 1.90 | 2.50 | — |
| Buffalo, .....Taunton Grain Co.... | Taunton..... | 27.99 | 23-25 | 1.95 | 2.50 | — |
| Buffalo, .....J. Paull..... | Taunton..... | 27.99 | 23-25 | 2.59 | 2.50 | — |
| Average..... | ..... | 27.31 | — | 2.54 | — | — |

## GLUTEN FEED—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **Corn Products Mfg. Co., New York.** | | | | | | |
| Crescent,.....I. N. Boucher & Son.. | East Dedham.. | 27.60 | 24-27 | 1.92 | 2.50 | — |
| Crescent,.....R. D. Bowen..... | Leominster .... | 27.29 | 24-27 | 1.48 | 2.50 | — |
| Crescent,.....G. M. Foster..... | Lowell ..... | 26.41 | 23-25 | 2.68 | 2.50 | — |
| Crescent,.....P. Foisy..... | New Bedford.. | 27.57 | 23-25 | 3.68 | 2.5-3 | — |
| Average..... | ..... | 27.22 | — | 2.44 | — | — |
| Diamond, .....A. Dodge Sons Corp.. | Beverly ..... | 25.27 | 23-25 | 3.21 | 2.50 | — |
| Diamond, .....W. N. Potter & Sons.. | Greenfield .... | 24.74 | 23-25 | 3.20 | 2.50 | — |
| Globe,.....Mackenzie & Winslow | Fall River .... | 30.05 | 24-26 | 1.88 | 2.50 | — |
| Globe,.....W. N. Potter & Sons.. | Gardner ..... | 27.11 | 24.26 | 3.26 | 2.50 | — |
| Globe,.....W. N. Potter & Sons.. | Greenfield .... | 26.33 | 26.00 | 2.41 | 2.50 | — |
| Globe,.....W. N. Potter Sons &Co | Hadley ..... | 28.92 | 24-27 | 2.20 | 2.50 | — |
| Globe,.....Stanley Grain Co..... | Lawrence ..... | 28.39 | 26.00 | 2.28 | 2.50 | — |
| Average..... | ..... | 28.16 | — | 2.41 | — | — |
| Pekin,.....Mackenzie & Winslow | Fall River .... | 27.03 | 23-25 | 2.75 | 2.50 | — |
| Pekin,.....O. F. Metcalf & Sons.. | Franklin ..... | 28.17 | 23-25 | 5.46 | 2.50 | — |
| Pekin,.....Hathaway & McKenzie | New Bedford.. | 27.11 | 23-25 | 1.94 | 2.50 | — |
| Pekin,.....Sprague & Williams .. | S. Framingham | 27.64 | 23-25 | 1.63 | 2.50 | — |
| Pekin,.....Jaquith & Co..... | Woburn..... | 26.76 | 23-25 | 3.66 | 2.50 | — |
| Average..... | ..... | 27.34 | — | 3.09 | — | — |
| **Electric Elevator & Milling Co., Buffalo.** | | | | | | |
| L. A. Snow..... | Upton ..... | 25.67 | 25.00 | 2.88 | 2.75 | — |
| **J. C. Hubinger Bros. Co., Keokuk, Iowa.** | | | | | | |
| Mackenzie & Winslow | Fall River .... | 24.57 | 23.50 | 2.28 | 2.60 | — |
| Howe Bros..... | Gardner ..... | 22.90 | 23.50 | 2.62 | 2.60 | — |
| J. E. Paull..... | Taunton..... | 26.17 | 23.50 | 2.76 | 2.60 | — |
| K. K. K. .....P. W. Eaton & Co.... | Williamstown.. | 24.70 | 23.00 | 2.61 | 2.30 | — |
| Average..... | ..... | 24.59 | — | 2.57 | — | — |
| **Huron Milling Co., Harbor Beach, Mich.** | | | | | | |
| Jenks,.....J. Burkhardt..... | Beverly ..... | 25.23 | 23-25 | 3.86 | 3.00 | — |
| Jenks,.....Lohan Bros..... | Marblehead ... | 27.87 | 23-25 | 3.16 | 3.00 | — |
| **J. E. Soper & Co., Boston.** | | | | | | |
| Bay State,.....A. N. Whittemore .... | Worcester .... | 22.99 | 23.00 | 3.52 | 4.00 | — |
| **Union Starch & Refin. Co.,Edinburg,Ind.** | | | | | | |
| Union, .....F. F. Woodard & Co.. | Fitchburg ..... | 24.83 | 24.00 | 3.70 | 3.00 | — |
| **Western Glucose Co., Chicago, Ill.** | | | | | | |
| Western,. .....Milbury Grain Co .... | Milbury..... | 23.22 | 23-25 | 2.69 | 2.50 | — |
| Western, .....F. Diehl & Son. ..... | Wellesley ..... | 24.57 | 23-25 | 3.25 | 2.50 | — |
| Highest ..... | ..... | 30.05 | — | 5.46 | — | — |
| Lowest ..... | ..... | 23.22 | — | 1.48 | — | — |
| Average..... | ..... | 26.52 | — | 2.81 | — | — |

## GLUTEN FEED—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| Second Grade (below 23% protein). | | % | % | % | % | % |
| **Clinton Sugar Refining Co., Clinton, Ia.** | | | | | | |
| Clinton, .....F. E. Smith ..... | Amherst ..... | 22.35 | 23.00 | 4.52 | 3.00 | — |
| **Globe Elevator Co., Buffalo, N. Y.** | | | | | | |
| Royal, .....M. H. Rolfe Est..... | Newburyport . | 21.41 | 20-23 | 4.79 | 2-4 | — |
| **Piel Bros. Starch Co., Indianapolis, Ind.** | | | | | | |
| Milford Grain Co..... | Milford ..... | 20.84 | 22.50 | 2.12 | 3.50 | — |
| **J. E. Soper & Co.. Boston.** | | | | | | |
| Bay State, .....E. E. Cole..... | Billerica ..... | 22.77 | 22.00 | 5.94 | 4.00 | — |
| Bay State, .....D. Seffens..... | Conway ..... | 21.76 | 22.00 | 5.80 | 4.00 | — |
| Average..... | ..... | 21.83 | — | 4.63 | — | — |

## DISTILLERS' DRIED GRAINS.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Ajax Milling & Feed Co., Buffalo.** | | | | | | |
| Ajax Flakes, .....A. F. Sanctuary ..... | Amherst..... | 32.73 | 31-33 | 13.66 | 12-14 | 12.19 |
| Ajax Flakes, .....G. C. Turner ..... | Chester ..... | 31.68 | 31-33 | 12.67 | 12.00 | 12.24 |
| Ajax Flakes, .....C. P. Washburn ..... | Middleboro.... | 30.73 | 31-33 | 13.60 | 12.00 | 10.65 |
| Ajax Flakes, .....C. P. Washburn ..... | Middleboro.... | 28.65 | 31-33 | 13.17 | 12.00 | 11.13 |
| Ajax Flakes, .....H. G. Puffer Co..... | Springfield .... | 29.75 | 31-33 | 12.51 | 12.00 | 13.31 |
| Ajax Flakes, .....Walker Grain Co..... | North Adams.. | 33.96 | 31-33 | 11.89 | 12.00 | 10.92 |
| Average..... | ..... | 31.25 | — | 12.92 | — | 11.74 |
| **J. W. Biles Co., Cincinnati, Ohio.** | | | | | | |
| Fourex, .....W. E. Bryant Co ..... | Brockton ..... | 33.75 | 31.00 | 14.19 | 11.00 | 11.37 |
| Fourex, .....J. Cushing & Co ..... | Fitchburg ..... | 29.53 | 31.00 | 8.93 | 12.00 | 12.19 |
| Fourex, .....Cutler Grain Co ..... | S. Framingham | 31.73 | 31.00 | 11.31 | 11.00 | 12.27 |
| Twoex, .....J. E. Merrick & Co.... | Amherst ..... | 28.69 | 27-30 | 9.07 | 8-12 | 11.45 |
| Twoex, .....P. W. Eaton & Co .... | Williamstown.. | 29.66 | 27-30 | 10.29 | 8-12 | 11.10 |
| Twoex, .....P. W. Eaton & Co.... | Williamstown.. | 25.58 | 27-30 | 8.32 | 8-12 | 12.67 |
| **Continental Cereal Co., Peoria, Ill.** | | | | | | |
| Atlas, .....W. N. Potter & Sons.. | Greenfield .... | 31.94 | 31-33 | 12.80 | 12-14 | 11.54 |
| Continental, .....A. C. Boice ..... | Conway ..... | 29.62 | 33.00 | 12.31 | 14.00 | 7.89 |
| Continental, .....J. Shea..... | Lawrence ..... | 29.97 | 33.00 | 12.12 | 14.00 | 10.88 |
| Continental, .....Potter Grain Co..... | Shelburne Falls | 29.62 | 33.00 | 11.92 | 14.00 | 7.80 |
| **J. D. Page & Co., Syracuse, N. Y.** | | | | | | |
| Empire State, ....C. Bond..... | Charlton ..... | 31.37 | 28-32 | 10.95 | 9-12 | 11.41 |
| Empire State, ....J. B. Garland & Son... | Worcester .... | 30.67 | 28-32 | 10 63 | 9-12 | 12.21 |
| Highest ..... | ..... | 33.96 | — | 14.19 | — | 13.31 |
| Lowest ..... | ..... | 25.58 | — | 8.32 | — | 7.80 |
| Average..... | ..... | 30.54 | — | 11.69 | — | 11.29 |

## MALT SPROUTS.

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **American Malting Co., Buffalo, N. Y.** | | | | | | |
| Bedford Coal & Gr.Co. | Bedford ..... | 32.21 | 25.00 | 1.60 | 2.00 | — |
| Ropes Bros..... | Danvers ..... | 26.59 | 25.00 | 1.05 | 2.00 | — |
| **Atlantic Export Co., Milwaukee, Wis.** | | | | | | |
| W. N. Potter Grain Co | Gardner ..... | 23.08 | 25.00 | 1.29 | 2.00 | — |
| J. B. Garland & Son .. | Worcester .... | 29.75 | 25.00 | 0.97 | 1.50 | — |
| J. B. Garland & Son .. | Worcester .... | 27.99 | 25.00 | 0.79 | 1.50 | 12.40 |
| **Chas. M. Cox Co., Boston.** | | | | | | |
| J. E. Merrick & Co ... | Amherst ..... | 26.85 | 25-27 | 1.14 | 1.5-3 | — |
| B. W. Brown ..... | Concord..... | 20.71 | 25-27 | 1.16 | 1.5-3 | 15.20 |
| Malden Grain Co..... | Malden..... | 24.74 | 25-27 | 1.13 | 1.5-3 | 11.90 |
| Thatcher & Ireland ... | Littleton ..... | 29.04 | 25-27 | 1.01 | 1.5-3 | — |
| **Francis Duhne, Jr., Milwaukee, Wis.** | | | | | | |
| Malden Grain Co..... | Malden..... | 28.02 | 25.00 | 1.04 | 2.00 | — |
| Robinson & Jones..... | Natick ..... | 25.85 | 25.00 | 1.23 | 2.00 | 9.84 |
| **Geo. J. Meyer Malting Co., Buffalo, N.Y.** | | | | | | |
| F. E. Smith ..... | Amherst ..... | 28.50 | 20.82 | 0.76 | 1.15 | 10.08 |
| **William Rahr Sons Co., Manitowoc, Wis.** | | | | | | |
| P. Foisy..... | New Bedford.. | 26.15 | 25.00 | 0.83 | 2.00 | 11.78 |
| Average..... | ..... | 26.88 | — | 1.08 | — | 11.87 |

## BREWERS' DRIED GRAINS.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Anheuser Busch Brew. Assoc., St. Louis** | | | | | | |
| N. Hatfield Grain Co.. | N. Hatfield.... | 25.11 | 24.00 | 8.07 | 7.50 | 14.01 |
| N. Hatfield Grain Co.. | N. Hatfield.... | 24.00 | 24.00 | 6.89 | 7.50 | 14.29 |
| J. B. Garland & Son .. | Worcester .... | 27.20 | 24.00 | 7.55 | 7.50 | 13.55 |
| **John C. Hattendorf, Chicago.** | | | | | | |
| H. Bruckman..... | Lawrence ..... | 29.13 | — | 5.68 | — | 13.05 |
| **Hottelet Co., Milwaukee, Wis.** | | | | | | |
| Holstein, .....Lexington Grain Co... | Lexington .... | 28.87 | 27.00 | 7.27 | 6.00 | 11.89 |
| Average..... | ..... | 26.86 | — | 7.09 | — | 13.36 |

## WHEAT MIDDLINGS.

| No. Samples. | Brand. | Manufacturer. | Protein. | | Fat. | |
|---|---|---|---|---|---|---|
| | | | Found. | Guar. | Found | Guar. |
| | 1. Flour. | | % | % | % | % |
| 1 | | Duluth Universal Mills Co., Duluth, Minn.. | 17.16 | 17.00 | 5.59 | 5.25 |
| 1 | Lucky..... | Federal Milling Co., Lockport, N. Y. ..... | 17.38 | — | 6.29 | — |
| 1 | Fancy..... | J. A. Hinds Co., Rochester, N. Y..... | 15.50 | — | 4.01 | — |
| 1 | Extra Macco ..... | A. B. McCrillis & Sons Co., Boston..... | 15.23 | 14.00 | 3.53 | 3.60 |
| 2 | XXX Comet..... | Northwestern Cons. Mills Co., Minneapolis. | 17.49 | 18.25 | 4.63 | 5.25 |
| 1 | | " " " " " | 17.83 | 16.25 | 6.09 | 5.25 |
| 1 | A ..... | Pillsbury's Mills, Minneapolis..... | 16.41 | 14.00 | 4.30 | 5.00 |
| 3 | XX Daisy ..... | " " " ..... | 17.05 | 16.00 | 4.94 | 4.50 |
| 1 | Strong Arm ..... | James Quirk Milling Co., Minneapolis..... | 17.20 | 16.00 | 5.05 | 4.00 |
| 1 | Low grade flour .. | Sleepy Eye Milling Co., Sleepy Eye, Minn. | 15.75 | 20.00 | 2.75 | 4.50 |
| 1 | Red Dog ..... | Star & Crescent Milling Co., Chicago..... | 17.72 | 14.5-17 | 5.03 | 4.5-5.5 |
| 1 | Vimco..... | Valley City Mill. Co., Grand Rapids, Mich.. | 15.71 | 15.84 | 4.73 | 4.00 |
| 1 | Winter Wheat.... | Voight Milling Co., Grand Rapids, Mich... | 16.01 | — | 4.75 | — |
| 3 | Adrian ..... | Washburn-Crosby Co., Minneapolis..... | 17.68 | 18-20 | 4.96 | 4-4.50 |
| 1 | | " " " " ..... | 18.42 | 17.00 | 6.36 | 5.00 |
| | | Highest ..... | 18.42 | — | 6.36 | — |
| | | Lowest ..... | 15.53 | — | 2.75 | — |
| | | Average..... | 16.98 | — | 4.87 | — |
| | 2. Standard. | | | | | |
| 1 | Cream ..... | Aurora Milling Co., Aurora, Mo..... | 16.85 | 15.00 | 4.19 | 3.18 |
| 1 | Badger ..... | Berger-Crittenden Mill. Co.,Milwaukee,Wis. | 18.34 | 16.00 | 4.58 | 4.00 |
| 1 | White No. 8..... | Chapin & Co., Boston ..... | 18.74 | 14-18 | 5.81 | 3-5 |
| 2 | Wirthmore ..... | Chas. M. Cox Co., Boston ..... | 17.42 | 15.17 | 5.52 | 4-5 |
| 1 | | Wm. G. Crocker, Minneapolis ..... | 17.46 | 15.00 | 5.64 | 4.00 |
| 1 | | J. G. Davis & Co., Rochester, N. Y..... | 17.25 | 17.55 | 6.32 | 4.72 |
| 1 | Fancy Apex..... | Detroit Milling Co., Detroit, Mich. ..... | 15.88 | 18.00 | 4.74 | 5.00 |
| 1 | Diamond ..... | Duluth-Superior Milling Co., Duluth, Minn. | 16.50 | 16.25 | 5.06 | 5.00 |
| 1 | Hog ..... | " " " " " " | 17.95 | — | 5.06 | — |
| 1 | Shorts ..... | Dwight Flour Mills, Minneapolis ..... | 17.11 | 14.50 | 5.34 | 5.00 |
| 1 | | Eckhardt & Swan Milling Co., Chicago .... | 17.16 | — | 4.06 | — |
| 1 | Lucky..... | Federal Milling Co., Lockport, N. Y. ..... | 18.69 | — | 5.56 | — |
| 1 | | Groton Milling Co., Groton, S. Dakota .... | 16.59 | 17.00 | 5.88 | 4.00 |
| 1 | | E. Hamilton & Son, Honeoye Falls, N. Y... | 15.58 | — | 4.13 | — |
| 1 | | W. H. Haskell, Toledo, Ohio..... | 16.41 | — | 4.83 | — |
| 1 | | Hecker-Jones-Jewell Milling Co., New York | 18.56 | 15.81 | 5.05 | 5.55 |
| 1 | | J. A. Hinds Co., Rochester, N. Y..... | 18.07 | 18.98 | 6.10 | 7.38 |
| 1 | No. (00) Climax... | Humboldt Mill Co., Buffalo, N. Y..... | 16.41 | — | 5.02 | — |
| 2 | | La Grange Mills, Red Wing, Minn..... | 18.10 | 16.00 | 5.93 | 5.00 |
| 1 | Elmco ..... | Listman Mill Co., La Crosse, Wis. ..... | 18.69 | 18.29 | 6.76 | 6.11 |
| 1 | Shorts ..... | Marshall Milling Co., Marshall, Minn..... | 17.90 | 17.00 | 6.04 | 5.00 |
| 1 | Powerful ..... | A. B. McCrillis & Son Co., Boston ..... | 16.37 | 15.75 | 5.85 | 5.25 |
| 2 | | Millbourne Mills Co., Philadelphia ..... | 18.32 | 13-18 | 4.39 | 3-6 |
| 2 | | Moseley & Motley Mill. Co., Rochester, N.Y. | 18.15 | 17.00 | 5.16 | 5.20 |
| 2 | | New Prague Fl. Mills Co.,New Prague,Minn. | 18.76 | 14.02 | 6.24 | 4.07 |
| 1 | A ..... | Pillsbury's Mills, Minneapolis, Minn ..... | 18.60 | 15.00 | 5.55 | 4.50 |
| 1 | B ..... | " " " " ..... | 17.11 | 16.00 | 4.99 | 4.50 |

## WHEAT MIDDLINGS—(Continued).

| No. Samples. | Brand. | Manufacturer. | Protein. | | Fat. | |
|---|---|---|---|---|---|---|
| | | | Found. | Guar. | Found. | Guar. |
| | | | % | % | % | % |
| 1 | | Pillsbury's Mills, Minneapolis, Minn. | 16.85 | 14.00 | 5.48 | 4.50 |
| 1 | Quality | Quality Mills, Enterprise, Kansas | 19.04 | 16.65 | 4.83 | 4.75 |
| 1 | Bixota | Red Wing Milling Co., Red Wing, Minn. | 18.36 | 17.00 | 5.98 | 4.00 |
| 1 | | Star & Crescent Milling Co., Chicago | 16.85 | 14-16 | 4.24 | 3.5-5 |
| 1 | Pennant | David Stott, Detroit, Mich. | 16.83 | 17.00 | 4.64 | 5.50 |
| 1 | Vimco | Valley City Milling Co., Grand Rapids, Mich. | 16.94 | — | 4.74 | — |
| 2 | | Washburn-Crosby Co., Minneapolis | 17.50 | 15 00 | 5.50 | 4.00 |
| 1 | Wheat and Rye | Wisconsin Milling Co., Menomonie, Wis. | 16.85 | 16.00 | 4.22 | 6.00 |
| 1 | Powerful | Not given | 15.71 | — | 5.48 | — |
| 1 | | " | 17.81 | 18.00 | 5.95 | 4.00 |
| | | Highest | 19.04 | — | 6.76 | — |
| | | Lowest | 15.58 | — | 4.06 | — |
| | | Average | 17.53 | — | 5.29 | — |

## WHEAT MIXED FEED.

| | | | | | | |
|---|---|---|---|---|---|---|
| 3 | Acme | Acme-Evans Co., Indianapolis, Ind. | 17.27 | 15-17.5 | 4.32 | 4-5 |
| 1 | | Akin-Erskine Milling Co., Evansville, Ind. | 17.42 | 16.72 | 3.93 | 4.01 |
| 1 | | Alma Roller Mills Co., Alma, Mich. | 15.44 | — | 4.38 | — |
| 1 | A. B. C. | Annan Burg & Co., St. Louis, Mo. | 16.72 | 14-17 | 3.88 | 4-5 |
| 1 | Arrow | Ansted & Burk Co., Springfield, Ohio | 17.03 | 14.5-15.5 | 4.55 | 4-5.5 |
| 1 | Fancy | E. W. Bailey & Co., Montpelier, Vt. | 17.42 | — | 4.10 | — |
| 1 | Shorts | Ballard & Ballard Co., Louisville, Ky. | 15.79 | 16.12 | 4.41 | 4.51 |
| 2 | Banner | Banner Milling Co., Buffalo, N. Y. | 16.70 | — | 5.41 | — |
| 2 | White Satin | Barber Milling Co., Minneapolis | 16.46 | 15.00 | 4.82 | 4.50 |
| 1 | | Bemmels Milling Co., Lisbon, N. Dakota | 14.66 | 14-18 | 5.81 | 5-7 |
| 1 | Bulls Eye | Blish Milling Co., Seymour, Ind. | 16.36 | 16.20 | 4.33 | 4.90 |
| 1 | Fancy | C. W. Bowker & Co., Worcester | 16.32 | 16-19 | 5.09 | 4-5 |
| 3 | Erie | Chapin & Co., Boston | 16.88 | 14-18 | 4.51 | 3-5 |
| 1 | Huron | " " " " | 16.50 | 15-18 | 4.87 | 4-7 |
| 1 | Pine Tree | " " " " | 15.79 | 14-18 | 4.15 | 3-5 |
| 1 | Rutland | " " " " | 15.66 | 14-18 | 4.75 | 4-6 |
| 4 | Vermont | " " " " | 16.69 | 14-18 | 4.78 | 4-6 |
| 2 | Winter Wheat | " " " " | 16.02 | 14-18 | 4.29 | 3-5 |
| 3 | Claro | Claro Milling Co., Lakeville, Minn. | 16.09 | 14-17 | 5.23 | 3-5 |
| 2 | Winter Wheat | Wm. A. Coombs Milling Co., Coldwater, Mich. | 16.09 | 15-18 | 4.73 | 3-6 |
| 1 | Columbia | Chas. M. Cox Co., Boston | 16.14 | — | 5.09 | — |
| 1 | Newton | " " " " " | 16.90 | 14.85 | 4.17 | 3.58 |
| 3 | Regent | " " " " " | 16.82 | — | 5.32 | — |
| 1 | Samoset | " " " " " | 16.32 | — | 4.66 | — |
| 2 | Wirthmore | " " " " " | 17.27 | 16-19 | 4.70 | 4-5 |
| 3 | Boston | Duluth-Superior Milling Co., Duluth, Minn. | 17.07 | 16.00 | 5.53 | 4.50 |
| 2 | E. A. C. O | Everett, Aughenbaugh & Co., Waseca, Minn. | 17.07 | 15-19 | 4.87 | 3-6 |

## WHEAT MIXED FEED—(Continued).

| No. Samples. | Brand. | Manufacturer. | Protein. | | Fat. | |
|---|---|---|---|---|---|---|
| | | | Found. | Guar. | Found. | Guar. |
| | | | % | % | % | % |
| 2 | Winged Horse ... | Everett, Aughenbaugh & Co., Waseca, Minn. | 15.95 | 14-19 | 5.16 | 3-6 |
| 1 | | Eckhart & Swan Milling Co., Chicago..... | 15.88 | — | 4.39 | — |
| 1 | | Farmers Milling Co., St. Cloud, Minn..... | 15.09 | — | 4.10 | — |
| 4 | Garland ..... | Garland Milling Co., Greensburg, Ind..... | 16.90 | 15¼-16 | 4.24 | 3.75-4 |
| 1 | Manhattan ..... | Hecker-Jones-Jewell Milling Co., New York. | 16.61 | 15.94 | 4.83 | 5.65 |
| 2 | Matchless ..... | Hunter Bros., Milling Co., St. Louis, Mo... | 17.11 | 15.00 | 4.68 | 4.00 |
| 2 | Sunshine ..... | " " " " " " " .. | 17.02 | 15.00 | 4.26 | 4.00 |
| 1 | | " " " " " " " .. | 16.67 | 15.00 | 4.58 | 4.00 |
| 2 | | Kehlor Flour Mills Co., St. Louis, Mo..... | 16.81 | 14-16 | 4.10 | 4.00 |
| 1 | | Lancenberg Bros. Co., St. Louis, Mo..... | 17.34 | 16.00 | 4.48 | 4.00 |
| 2 | Snow Flake ..... | Lawrenceburg Roller Mills, Law'ceb'g, Ind. | 16.93 | — | 4.44 | — |
| 2 | Lexington ..... | Lexington Roller Mills, Lexington, Ky..... | 15.95 | — | 4.46 | — |
| 3 | Uniform ..... | D. L. Marshall Milling Co., Buffalo..... | 15.53 | 16-19 | 4.49 | 3-5 |
| 1 | Powerful ..... | A. B. McCrillis & Son Co., Boston..... | 16.55 | 16.50 | 5.17 | 5.25 |
| 1 | Extra Powerful .. | " " " " " " " ..... | 17.64 | 16.00 | 5.55 | 5.25 |
| 3 | Millbourne ..... | Millbourne Mills, Philadelphia..... | 16.55 | 13-18 | 4.48 | 3-6 |
| 3 | King ..... | R. P. Moore Milling Co., Princeton, Ind.... | 16.93 | 15.00 | 4.28 | 4.00 |
| 2 | Planet..... | Northwestern Consol. Mill. Co., Minneapolis | 16.99 | 16.00 | 5.73 | 5.25 |
| 2 | | Pillsbury Mills, Minneapolis..... | 16.22 | 14-16 | 4.67 | 4-4.5 |
| 2 | Buckeye.... .... | Quaker Oats Co., Chicago..... | 15.97 | 13-17 | 4.22 | 4-4.7 |
| 1 | Fanchon ..... | Quality Mills, Enterprise, Kansas..... | 17.44 | 14.26 | 4.55 | 4.00 |
| 1 | Bixota ..... | Red Wing Milling Co., Red Wing, Minn... | 15.88 | 14.00 | 5.28 | 4.20 |
| 2 | Regular ..... | Russell Flour Co., Albany, N. Y..... | 16.50 | 15.00 | 5.30 | 4.50 |
| 5 | Occidental ..... | Russell-Miller Milling Co., Minneapolis.... | 16.77 | 15-18 | 5.19 | 4-5 |
| 1 | | Scott County Milling Co., Sikeston, Mo.... | 16.81 | 17.00 | 5.01 | 4.50 |
| 1 | Big Diamond..... | Sheffield-King Milling Co., Minneapolis.... | 15.79 | 19.00 | 5.26 | 4.50 |
| 4 | Gold Mine ..... | " " " " " .... | 16.57 | 17.00 | 5.11 | 4.50 |
| 2 | Sleepy Eye ..... | Sleepy Eye Milling Co., Sleepy Eye, Minn. | 16.08 | 12.00 | 4.59 | 5.00 |
| 1 | Heavy ..... | David Stott, Detroit, Mich..... | 16.37 | 16.50 | 4.54 | 5.00 |
| 2 | Honest ..... | " " " " ..... | 16.13 | — | 4.66 | — |
| 2 | | Stratton & Co., Concord, N. H..... | 15.49 | — | 4.51 | — |
| 1 | Monarch ..... | F. W. Stock & Sons, Hillsdale, Mich..... | 15.79 | — | 4.80 | — |
| 1 | Moosomin..... | Sutchliffe, Muir Mill., Moosomin, Sask, Can. | 15.44 | — | 5.01 | — |
| 3 | | Thornton & Chester Milling Co., Buffalo.. | 16.28 | 14-18 | 5.02 | 3-5 |
| 1 | Valier's ..... | Valier & Spies Milling Co., Marine, Ill..... | 16.19 | — | 5.16 | — |
| 2 | Mill Run ..... | Waggoner-Gates Mill. Co., Independence, Mo. | 17.86 | 15.00 | 4.02 | 4.00 |
| 1 | Superior ..... | Washburn-Crosby Co., Minneapolis..... | 16.70 | 16.00 | 5.06 | 4.50 |
| 3 | Webster..... | Webster Mill Co., Webster, So. Dakota.... | 15.78 | — | 5.33 | — |
| 2 | Best ..... | Whitman Grain & Coal Co., Whitman..... | 17.07 | 16-18 | 5.33 | 4-5 |
| 4 | Kent..... | Williams Bros. Co., Kent, Ohio..... | 15.92 | 12-18 | 4.27 | 2-5 |
| 1 | Searchlight ..... | Wisconsin Milling Co., Menomonie, Wis... | 15.93 | 16.00 | 5.06 | 5.00 |
| 1 | Columbia..... | Not given..... | 16.06 | — | 3.28 | — |
| 1 | Extra Powerful .. | " " ..... | 17.00 | 16.00 | 5.38 | 5.25 |
| | | Highest ..... | 17.86 | — | 5.81 | — |
| | | Lowest..... | 14.66 | — | 3.88 | — |
| | | Average..... | 16.49 | — | 4.74 | — |

## WHEAT BRAN.

| No. Samples. | Brand. | Manufacturer. | Protein. | | Fat. | |
|---|---|---|---|---|---|---|
| | | | Found. | Guar. | Found. | Guar. |
| | | | % | % | % | % |
| 1 | | Arms & Kidder, Kansas City, Mo. | 16.90 | — | 4.77 | — |
| 1 | | Amendt Milling Co., Monroe, Mich. | 16.99 | — | 4.10 | — |
| 1 | Ballard's | Ballard & Ballard Co., Louisville, Ky. | 16 46 | 16.58 | 3.86 | 4.60 |
| 1 | Niagara | Cataract City Milling Co., Niagara Falls, N.Y. | 15.84 | 14.78 | 5.05 | 4.12 |
| 1 | Jersey | Geo. C. Christian & Co., Minneapolis | 15.40 | 13.00 | 5.11 | 4.00 |
| 1 | | Cumberland Mills Co., Nashville, Tenn. | 16.14 | 14.50 | 4.13 | 4.00 |
| 1 | Eagle | Eagle Roller Mills Co., New Ulm, Minn. | 14.97 | 14.00 | 5.00 | 4.00 |
| 1 | | Eckhardt & Swan Milling Co., Chicago | 16.37 | — | 4.06 | — |
| 1 | | Federal Milling Co., Lockport, N. Y. | 15.58 | — | 5.47 | — |
| 2 | Cloverleaf | Gardner Mill, Hastings, Minn. | 15.20 | 13 50 | 5.20 | 4.50 |
| 1 | 100% Pure | Gwinn Milling Co., Columbus, Ohio | 16.72 | 15-18 | 4.39 | 4-6 |
| 2 | Dreadnought | Hunter-Robinson-Wenz Milling Co., St. Louis | 16.50 | 14.50 | 4.65 | 4.00 |
| 1 | Repeater | " " " " " " " | 15.58 | 14.5-17 | 4.44 | 3 5-5 |
| 1 | Anchor | Kemper Mill & Elevator Co., Kansas City | 16.50 | 14.50 | 4.56 | 4 00 |
| 1 | | Liberty Mills, Nashville, Tenn. | 17.16 | 14.50 | 3.63 | 4.00 |
| 1 | Bran & Screenings | Lindsborg Mill. & Elevator, Lindsborg, Kans. | 17.53 | 13.00 | 3.78 | 4.00 |
| 1 | Extra Macco | A. B. McCrillis & Son Co., Boston | 16.25 | 14.29 | 4.31 | 4.16 |
| 1 | Powerful Stand | " " " " " " " | 15.09 | 14.25 | 4.98 | 4.00 |
| 1 | Mystic | Mystic Milling Co., Sioux City, Iowa | 15.36 | 14.00 | 4 49 | 4.00 |
| 1 | Seal of Minnesota. | New Prague Flour. Mills, New Prague, Minn. | 15.23 | 14.00 | 5.11 | 4.03 |
| 1 | | Northwestern Consol. Mill. Co., Minneapolis | 15.46 | 14.25 | 4.90 | 4.00 |
| 1 | Quality | Quality Mills, Enterprise, Kansas | 16.74 | 14.26 | 3.65 | 4.00 |
| 1 | | James Quirk Milling Co., Montgomery, Minn. | 14.97 | 14 50 | 4.77 | 4.40 |
| 1 | | Star & Crescent Milling Co., Chicago, Ill. | 15.84 | 13-15 | 3.92 | 3.5-5 |
| 1 | Stott's | David Stott, Detroit, Mich. | 15.49 | 16.00 | 4.34 | 4.00 |
| 1 | Vimco | Valley City Milling Co., Grand Rapids, Mich. | 15.40 | — | 4.20 | — |
| 2 | Voight's | Voigt Milling Co., Grand Rapids, Mich. | 14.94 | — | 4.05 | — |
| 1 | | Washburn-Crosby Co., Minneapolis | 15.14 | 14.50 | 5.31 | 4.00 |
| 1 | Big Jo | Wabasha Roller Mill. Co., Wabasha, Minn. | 15.95 | 15.20 | 5.09 | 5.10 |
| 1 | Mill Run | Waggoner-Gates Mill Co., Independence, Mo | 17.20 | 15.00 | 4.30 | 4 00 |
| 1 | Snow's Fancy | E. S. Woodworth & Co., Minneapolis | 16.41 | 14.25 | 5.29 | 4.00 |
| 1 | Diamond | Not given | 15 20 | — | 5.17 | — |
| | | Highest | 17.53 | — | 5.47 | — |
| | | Lowest | 14.94 | — | 3.63 | — |
| | | Average | 15.92 | — | 4.57 | — |

## ADULTERATED WHEAT FEEDS.

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| 1. Middlings. | | % | % | % | % | % |
| **Indiana Milling Co., Terre Haute, Ind.** | | | | | | |
| Flo Middo, .....F. Diehl..... | Wellesley ..... | 11.93 | 11-13 | 2.64 | 2.5-3.5 | 9.37 |
| **New Occidental Mill. Co., Minneapolis.** | | | | | | |
| Aloras, .....Bedford Coal & Gr. Co. | Bedford. ..... | 17.29 | 16.00 | 8.03 | 5.00 | — |
| Aloras, .....Lummus & Parker .... | Danversport .. | 16.41 | 16.00 | 6.31 | 5.00 | — |
| Aloras, .....Conant & Co ..... | Littleton ..... | 16.06 | 16.00 | 7.24 | 5.00 | — |
| 2. Mixed Feed. | | | | | | |
| **F. L. Cressey, Boston.** | | | | | | |
| Indiana,.....A. P. Ames & Co..... | Peabody ..... | 11.67 | 10-12.05 | 2.95 | 2-3.20 | 13.57 |
| **Indiana Milling Co., Terre Haute, Ind.** | | | | | | |
| Jersey, .....Mackenzie & Winslow | Fall River .... | 10.18 | 10-12.05 | 2.89 | 2-3.20 | 16.71 |
| Jersey, .....W. J. Meek ..... | Fall River .... | 12.71 | 10-12 | 2.91 | 2.5-3.5 | 13.84 |
| Sterling, .....Bedford Coal & Gr. Co. | Bedford ..... | 12.86 | 11.5-13 | 3.10 | 3-4 | 12.46 |
| Sterling,. .....N. Paquin & Sons .... | Fall River .... | 12.81 | 11.5-13 | 2.99 | 3-4 | 12.80 |
| **A. Waller & Co., Henderson, Ky.** | | | | | | |
| Blue Grass, .....J. A. Bouvier ..... | New Bedford.. | 10.75 | 10.00 | 2.85 | 2.50 | 14.88 |
| Blue Grass, .....J. A. Bouvier ..... | New Bedford.. | 11.10 | 9-11 | 3.61 | 2-3 | 15.62 |
| Blue Grass, .....H. H. Capen..... | Spencer..... | 11.14 | 9-11 | 3.14 | 2-3 | 15.79 |
| Blue Grass, .....Curley Bros..... | Wakefield ..... | 11.98 | 9-11 | 3.02 | 2-3 | 14.64 |
| Average..... | ..... | 11.69 | — | 3.05 | — | 14.48 |

## DAIRY FEEDS.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Ajax Milling & Feed Co., Buffalo, N. Y.** | | | | | | |
| Unicorn, .....F. E. Smith ..... | Amherst..... | 27.73 | 26.00 | 6.18 | 6.00 | 9.28 |
| Unicorn, .....W. N. Potter & Son .. | Charlemont.... | 27.45 | 26.00 | 5.59 | 6.00 | 8.86 |
| Unicorn, .....C. Bond..... | Charlton ..... | 26.98 | 26.00 | 5.10 | 6.00 | 8.99 |
| Unicorn, .....B. W. Brown ..... | Concord..... | 25.03 | 26.00 | 6.56 | 6.00 | 8.05 |
| Unicorn, .....Marlboro Grain Co ... | Marlboro ..... | 27.47 | 26.00 | 8.59 | 6.00 | 8.48 |
| Unicorn, .....W. N. Potter Sons Co. | Northampton .. | 26.41 | 26.00 | 7.50 | 6.00 | 8.27 |
| Unicorn, .....Warner Bros ..... | Sunderland ... | 26.15 | 26.00 | 6.81 | 6.00 | 9.00 |
| **Ames, Burns & Co., Jamestown, N. Y.** | | | | | | |
| A. B. C., .....Sykes Coal & Grain Co. | North Adams.. | 26.85 | 20-24 | 10.92 | 8.00 | 7.12 |
| **J. W. Biles Co., Cincinnati, Ohio.** | | | | | | |
| Union Grains, ....W. N. Potter Sons Co. | Hadley..... | 24.66 | 24.00 | 7.26 | 7.00 | 8.93 |
| Union Grains, ....Cutler Grain Co..... | S. Framingham | 25.54 | 24.00 | 6.92 | 7.00 | 9.96 |
| Union Grains, ....Cutler Grain Co..... | S. Framingham | 25.19 | 24.00 | 7.14 | 7.00 | 8.95 |
| Union Grains, ....H. G. Puffer Co ..... | Springfield .... | 25.23 | 24.00 | 6.86 | 7.00 | 9.53 |
| Union Grains, ....J. L. Nason ..... | Westboro ..... | 24.74 | 24.00 | 7.07 | 7.00 | 12.91 |
| **J. Bibby & Sons, Liverpool, England.** | | | | | | |
| Oil Cake Feed,....B. W. Brown ..... | Concord..... | 20.89 | 16.00 | 8.01 | 7.00 | 9.54 |
| Oil Cake Feed,....J. Loring & Co. ..... | Watertown .... | 19.31 | 18.20 | 8.07 | 6.80 | — |
| Oil Cake Feed,....E. & A. M. Fullerton. | Brockton ..... | 19.13 | 18.00 | 8.54 | 6.80 | 9.37 |

## DAIRY FEEDS—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **Buffalo Cereal Co., Buffalo, N. Y.** | | | | | | |
| Creamery Feed. ..Griffin Bros..... | Fall River .... | 20.95 | 20.00 | 6.05 | 5.00 | 9.19 |
| Creamery Feed, ..F. H. Crane & Son ... | Quincy Adams. | 20.97 | 20.00 | 4.91 | 5.00 | 8.14 |
| **H-O Co., Buffalo, N. Y.** | | | | | | |
| Algrane Milk, ....J. O. Ellison & Co..... | Haverhill..... | 19.48 | 14.00 | 3.95 | 4.00 | 11.57 |
| Algrane Milk, ....Lenox Coal Co ..... | Lenoxdale..... | 18.57 | 14.00 | 3.67 | 4.00 | 12.79 |
| Algrane Milk, ....H. E. Noyes..... | Lowell ..... | 17.81 | 14.00 | 4.20 | 4.00 | 12.92 |
| **Penna. Primo Feed Co., Harrisburg, Pa.** | | | | | | |
| *Sylva,.....Wallace Grain Co .... | Clinton..... | 15.75 | 14.69 | 3.57 | 5.11 | 11.27 |
| *Sylva,.....H. Bruckman ..... | Lawrence ..... | 15.79 | 14.69 | 3.18 | 5.11 | 10.14 |
| **St. Albans Grain Co., St. Albans, Vt.** | | | | | | |
| Farmers' Friend, .P. Foisy..... | New Bedford.. | 28.30 | 26-30 | 5.06 | 5-7 | 9.05 |
| Paragon,.....W. R. Ross Co. ..... | Holyoke..... | 33.52 | 28-30 | 6.54 | 5-7 | 11.03 |
| Paragon,.....Bedford Coal & Gr.Co. | Bedford..... | 33.79 | 28-30 | 6.06 | 5-7 | 10.50 |

## MOLASSES FEEDS.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Alfalfa Meal Co., Omaha, Neb.** | | | | | | |
| Payne's Alfalmo, .Taunton Grain Co..... | Taunton..... | 12.64 | — | 0 80 | — | 17.99 |
| **American Milling Co., Chicago.** | | | | | | |
| Sucrene Dairy, ...Dennison Plummer Co. | New Bedford.. | 16.50 | 16.50 | 4.02 | 3.50 | 11.40 |
| Sucrene Dairy, ...Prentiss, Brooks & Co. | Easthampton .. | 16.76 | 16.50 | 4.76 | 3.50 | 13.38 |
| Sucrene Dairy, ...Sprague & Williams .. | S. Framingham | 16.19 | 16.50 | 4.95 | 3.50 | 11.71 |
| Sucrene Dairy, ...G. Methe..... | Springfield .... | 18.07 | 16.50 | 5.31 | 3.50 | 11.31 |
| Sucrene Horse, ..Prentiss, Brooks & Co. | Easthampton .. | 10.84 | 10.00 | 3.07 | 3.00 | 9.78 |
| Sucrene Horse, ..W. A. Haynes Co..... | Maynard ..... | 10.97 | 10.00 | 2.27 | 3.00 | 10.37 |
| Sucrene Horse, ..G. Methe ..... | Springfield .... | 9.56 | 10.00 | 2.78 | 3.00 | 9.69 |
| **Ames, Burns & Co., Jamestown, N. Y.** | | | | | | |
| Consolidated, ....Sykes Coal & Grain Co | North Adams.. | 16.23 | 16-18 | 5.63 | 3.5-4.5 | 9.84 |
| **F. W. Dorr & Co., Newton Center.** | | | | | | |
| Harvard, .....F. W. Dorr & Co. .... | Newton Center. | 19.00 | 18-20 | 3.56 | 4-6 | 6.76 |
| **Great Western Cereal Co., Chicago.** | | | | | | |
| Daisy, .....A. E. Lawrence & Son. | Ayer ..... | 17.87 | 14.00 | 2.01 | 3.00 | 9.70 |
| **Hunter Bros. Milling Co., St. Louis, Mo.** | | | | | | |
| Best of All,.....H. C. Bowen & Son... | Cheshire ..... | 15.50 | 15.00 | 3.20 | 3.00 | 16.79 |
| **Husted Milling Co., Buffalo, N. Y.** | | | | | | |
| Regal,.....C. F. Pease..... | Chester ..... | 11.41 | 7-9 | 3.43 | 3-4 | 8.52 |
| Husted's,.....A. Dodge Sons Corp.. | Beverly ..... | 16.32 | 16-18 | 3.78 | 4-6 | 10.12 |
| Husted's,.....G. H. Pease ..... | Chester ..... | 16.72 | 18-20 | 2.70 | 4-5 | 6.58 |
| Husted's,.....I. N. Boucher & Son.. | East Dedham.. | 17.90 | 18-20 | 3.36 | 4-6 | 7.08 |
| **International Sug'r Feed Co., Minneapolis** | | | | | | |
| International, ....Wachusett Grain Co... | Clinton..... | 16.67 | 16.50 | 4.70 | 3.50 | 10.94 |

* Withdrawn from market.

## MOLASSES FEEDS—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| **Chas. A. Krause Milling Co., Milwaukee.** | | % | % | % | % | % |
| Badger, .....City Mills Co. ..... | Holyoke ..... | 16.50 | 16-18 | 4.88 | 3.5-4-5 | 11.52 |
| Badger, .....N. Hatfield Grain Co.. | N. Hatfield.... | 15.01 | 16-18 | 3.31 | 3.5-4.5 | 11.20 |
| Badger, .....J. B. Bridges & Co.... | S. Deerfield ... | 15.80 | 16-18 | 5.21 | 3.5-4.5 | 12.82 |
| **Northwest Mills Co., Winona, Minn.** | | | | | | |
| Sugarota Dairy, ..Potter & Co..... | Athol ..... | 18.30 | 18.00 | 8.46 | 4.60 | 16.75 |
| Sugarota Dairy, ..Lummus & Parker ... | Danversport... | 16.85 | 18.00 | 5.36 | 4.50 | 16.98 |
| Sugarota Dairy, ..Mackenzie & Winslow | Fall River..... | 17.42 | 18.00 | 6.37 | 4.50 | 11.08 |
| Sugarota Dairy, ..Mackenzie & Winslow | Fall River..... | 18.22 | 18.00 | 6.36 | 4.50 | 10.62 |
| Sugarota Dairy, ..Dennison Plummer Co. | New Bedford.. | 16.72 | 18.00 | 6.44 | 4.50 | 16.44 |
| Sugarota Dairy, ..J. B. Garland & Son .. | Worcester..... | 18.60 | 18.00 | 6.68 | 4.50 | 17.63 |
| Sugarota Horse, ..A. P. Ames Co..... | Peabody ..... | 15.27 | 12.00 | 5.26 | 3.50 | 19.27 |
| Sugarota Swine, ..A. P. Ames Co..... | Peabody ..... | 17.03 | 18.00 | 6.55 | 4.50 | 13.06 |
| **Quaker Oats Co., Chicago.** | | | | | | |
| *Molac, .....J. Waite..... | Easthampton .. | 13.90 | 11-13 | 3.27 | 3-4 | 14.46 |
| *Molac, .....G. H. Reed..... | South Acton... | 13.56 | 15.5-17 | 1.88 | 3-4 | 9.81 |
| *Molac, .....C. W. Mead..... | West Acton ... | 14.48 | 15.5-17 | 3.18 | 3-4 | 9.52 |
| Quaker, .....A. Dodge & Son..... | Beverly ..... | 15.79 | 16.00 | 2.86 | 3.50 | 13.12 |
| Quaker, .....Sprague & Williams .. | S. Framingham | 17.60 | 16.00 | 2.87 | 3.50 | 13.28 |
| **Western Grain Prod. Co., Hammond, Ind.** | | | | | | |
| Hammond Dairy,..Patrons Co-op. Assoc.. | Lowell ..... | 16.32 | 17.00 | 4.70 | 3.00 | 11.02 |
| Hammond Dairy,..Berks're Coal & Gr. Co. | North Adams.. | 16.72 | 17.00 | 4.03 | 3.00 | 10.40 |
| Hammond Horse..Berks're Coal & Gr. Co. | North Adams.. | 13.30 | 9.00 | 2.35 | 4.00 | 11.99 |

## RYE FEEDS.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Geo. T. Callahan, Castleton, N. Y.** | | | | | | |
| G. C. Turner ..... | Chester ..... | 15.05 | 12.00 | 2.68 | 2.00 | — |
| **Oneonta Milling Co., Oneonta, N. Y.** | | | | | | |
| Middlings,.....G. H. Reed..... | West Acton ... | 15 67 | — | 3.22 | — | — |
| **Potter & Wright, Boston.** | | | | | | |
| Meal, .....A. Dodge & Son..... | Beverly ..... | 12.02 | — | 1.99 | — | — |
| **Washburn & Crosby, Minneapolis.** | | | | | | |
| Middlings,.....N. Hatfield Grain Co.. | N. Hatfield.... | 16.23 | 14.00 | 3.44 | 3.00 | — |

## CALF MEAL.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Blatchford Calf Meal Fac., Waukegan, Ill.** | | | | | | |
| Blatchford's, .....Eastern Grain Co..... | Bridgewater ... | 29 04 | 25.00 | 5.54 | 5.00 | 5.84 |
| Blatchford's. .....J. W. Doon ..... | Natick ..... | 23.26 | 25.00 | 4.65 | 5.00 | — |

* Withdrawn from market.

## CALF MEAL—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **Chapln & Co., Boston.** | | | | | | |
| Triangle, .....W. A. Haynes..... | Maynard ..... | 23.91 | 22.00 | 12 87 | 10.00 | — |
| **Great Western Cereal Co., Chicago.** | | | | | | |
| Gregson, .....C. Bond ..... | Charlton ..... | 25.36 | 25.00 | 7.27 | 5.00 | 4.80 |
| **Northwest Mills Co., Winona, Minn.** | | | | | | |
| Sugarota, .....C. Bond ..... | Charlton ..... | 30.05 | 25.00 | 6.74 | 6.00 | — |
| **Quaker Oats Co., Chicago.** | | | | | | |
| Schumacher's, ....A. E. Lawrence & Son | Ayer ..... | 20.67 | 19-21 | 7.72 | 8-9.5 | — |
| Schumacher's, ....W. E. Bryant & Co... | Brockton ..... | 19.39 | 19-21 | 9.86 | 8-9.5 | 2.07 |
| Schumacher's, ....J. W. Doon ..... | Natick ..... | 19.22 | 19-21 | 8.55 | 8-9.5 | — |

## II. Starchy (Carbohydrate) Feeds.

### CORN MEAL.

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **Ground by Retailer.** | | | | | | |
| E. J. Adams | Gt. Barrington. | 9.17 | — | 3.76 | — | 1.68 |
| A. Culver Co. | Rockland | 8.60 | — | 3.03 | — | 0.77 |
| Dresser Hull Co. | Lee | 9.39 | — | 3.97 | — | 1.42 |
| Griswold & Adams | Dalton | 9.65 | — | 3.20 | — | 2.73 |
| E. F. Howard | Ware | 9.21 | — | 3.82 | — | 1.88 |
| Wallace Lord | Athol | 8.95 | — | 3.98 | — | 1.84 |
| W. J. Meek | Fall River | 8.76 | — | 3 00 | — | 1.14 |
| N. Hatfield Grain Co. | N. Hatfield | 9.37 | — | 4.14 | — | 1.76 |
| J. B. Norton | Warren | 8.29 | — | 3.22 | — | 3.76 |
| Prentiss, Brooks & Co. | Westfield | 8 95 | — | 2.78 | — | 1.71 |
| Prentiss, Brooks & Co. | Westfield | 9.13 | — | 4.02 | — | 1.83 |
| G. C. Turner | Chester | 7.32 | — | 3.55 | — | 1.57 |
| Spring'd Flour & Gr.Co | Springfield | 9.44 | — | 4.40 | — | 1.37 |
| C. P. Washburn | Middleboro | 9.30 | — | 3.12 | — | 1.76 |
| C. P. Washburn | Middleboro | 9 44 | — | 2.77 | — | 1.51 |
| E. F. Wilbur & Sons | Mansfield | 8.95 | — | 3.69 | — | 1.86 |
| Cracked, H. C. Bowen & Son | Cheshire | 8.44 | — | 3.91 | — | — |
| Cracked, Spring'd Flour & Gr.Co | Springfield | 9.17 | — | 4.10 | — | — |
| **E. W. Bailey & Co., Montpelier, Vt.** | | | | | | |
| J. E. Merrick & Co. | Amherst | 9.35 | — | 3.98 | — | 1.74 |
| **Buffalo Cereal Co., Buffalo, N. Y.** | | | | | | |
| B, Hathaway & McKenzie | New Bedford | 10.23 | — | 5.99 | — | 2.58 |
| Granulated, Hathaway & McKenzie | New Bedford | 9.00 | — | 1.11 | — | — |
| Mohawk, Lenox Coal Co | Lenoxdale | 8.60 | — | 2.91 | — | 0.63 |
| Mohawk, F. H. Crane & Sons | Quincy | 8.16 | — | 2.35 | — | 0.71 |
| Seneca, Griffin Bros. | Fall River | 10.20 | — | 4.86 | — | 2.46 |
| **J. Cushing & Co., Fitchburg.** | | | | | | |
| N. Paquin & Sons | Fall River | 8.60 | — | 3.81 | — | 1.90 |
| C. A. Smith | Dighton | 8.86 | — | 3.66 | — | 2.12 |
| **Cutler Co., North Wilbraham.** | | | | | | |
| H. H. Capen | Spencer | 8.78 | — | 4.26 | — | 1.98 |
| **J. B. Garland & Son, Worcester.** | | | | | | |
| C. Bond | Charlton | 8.74 | — | 4.07 | — | 2.11 |
| **Great Western Cereal Co., Chicago.** | | | | | | |
| H. Bullikan | Franklin | 6.49 | — | 1.29 | — | 0.32 |
| **Husted Milling Co., Buffalo.** | | | | | | |
| Fancy, Hoosac Val.Coal&Gr.Co | Adams | 7.63 | — | 2.13 | — | — |
| Fine bolted, M. C. Richmond | Adams | 7 50 | — | 1.29 | — | — |
| **Narragansett Mill.Co., E.Providence, R.I.** | | | | | | |
| A, Taunton Grain Co. | Taunton | 8.86 | — | 3.39 | — | 1.60 |
| B, Taunton Grain Co. | Taunton | 8.82 | — | 2 70 | — | 2.60 |
| A. Culver Co | Rockland | 9.17 | — | 3.53 | — | 2.35 |

## CORN MEAL—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar | Found. | Guar. | |
| **Quaker Oats Co., Chicago.** | | % | % | % | % | % |
| Feed Meal, .....W. N. Potter Grain Co | Gardner ..... | 9.39 | 8.5-10.5 | 5.21 | 3-5 | 2.38 |
| Feed Meal, .....E. A. Cowee ..... | Worcester ..... | 9.13 | 8.5-10.5 | 4.98 | 3-5 | 2.30 |
| F. Dunham..... | Sheffield ..... | 9.04 | — | 5.33 | — | 2.62 |
| **Smith, Northam & Co., Hartford, Conn.** | | | | | | |
| Bolted, .....W. N. Potter & Sons.. | Northampton.. | 7.99 | — | 3.35 | — | — |
| Granulated, .....W. N Potter & Sons.. | Northampton.. | 8.91 | — | 1.85 | — | — |
| J. F. Shine ..... | Dedham..... | 8.51 | — | 6.82 | — | 3 02 |
| **Stratton & Co., Concord, N. H.** | | | | | | |
| I. J. Powell ..... | Pepperell..... | 9.17 | — | 3.97 | — | 1.95 |
| Average..... | ..... | 8.85 | — | 3.59 | — | 1.88 |

## GROUND OATS.

| | | | | | | |
|---|---|---|---|---|---|---|
| F. H. Crane & Sons .. | Quincy Adams. | 11.14 | — | 5.70 | — | 6.86 |
| Whole,.....W. S. Harrington..... | Adams ..... | 10.36 | — | 5.25 | — | 10.09 |
| J. F. Hunt..... | Lynn..... | 11.14 | — | 4.87 | — | 9 82 |
| E. C. Packard ..... | Brockton ..... | 11.06 | — | 3.80 | — | 8.35 |
| Potter & Co ..... | Athol ..... | 11 58 | — | 4.20 | — | 9.09 |
| Potter & Co ..... | Athol ..... | 10.32 | — | 3.60 | — | 7.39 |
| Prentiss, Brooks & Co. | Holyoke..... | 12.24 | — | 4.77 | — | 9.64 |
| Smith Feed Co ..... | Westfield..... | 11.98 | — | 3.16 | — | 7.15 |
| Average..... | ..... | 11.23 | — | 4.42 | — | 8.55 |

## FEED BARLEY.

| | | | | | | |
|---|---|---|---|---|---|---|
| **J. Cushing & Co., Fitchburg.** | | | | | | |
| N. Paquin & Sons .... | Fall River. ... | 12.25 | — | 2.49 | — | 4.80 |

## HOMINY MEAL.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Allen Baker Commission Co., St. Louis.** | | | | | | |
| Crown, .....L. A. Snow..... | Upton..... | 10.23 | 11.02 | 8.38 | 7.70 | — |
| **American Hominy Co., Indianapolis, Ind.** | | | | | | |
| Homco, .....W. E. Bryant & Co... | Brockton ..... | 11.69 | 8.50 | 7.80 | 7.70 | — |
| Homco, .....J. Cushing & Co..... | Fitchburg ..... | 10.62 | 8.50 | 9.13 | 7.00 | — |
| Homco, .....J. B. & W. A. Lamper. | Lynn..... | 9.13 | 8.50 | 6 22 | 7.50 | — |
| J. H. Nye ..... | Brockton ..... | 11.06 | 10.24 | 8.28 | 7.24 | — |

## HOMINY MEAL—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **M. F. Baringer, Philadelphia.** | | | | | | |
| W. E. Bryant & Co. .. | Brockton..... | 10.44 | 9.00 | 8.69 | 6.00 | — |
| Mackenzie & Winslow. | Fall River .... | 11.84 | 9.00 | 10.95 | 6.00 | — |
| Lexington Grain Co... | Lexington ..... | 10.40 | 9.00 | 8.46 | 6.00 | — |
| **Buffalo Cereal Co., Buffalo.** | | | | | | |
| N. Paquin & Sons .... | Fall River .... | 9.21 | 10.25 | 5.75 | 8.00 | 2.93 |
| N. Paquin & Sons .... | Fall River .... | 11.19 | 10.25 | 8.60 | 8.00 | — |
| Hathaway & McKenzie | New Bedford.. | 10.49 | — | 8.33 | — | — |
| **Chapin & Co., Boston.** | | | | | | |
| Green Diamond,..D. J. Harrington..... | Turners Falls.. | 10.75 | 10-11 | 7.99 | 7-9 | — |
| Niagara, .....Lummus & Parker .... | Danversport... | 10.58 | 10-11 | 7.97 | 7-8 | — |
| **Chas. M. Cox Co., Boston.** | | | | | | |
| Paragon, .....Haverhill Grain Co .. | Haverhill..... | 10.27 | 10.5-12 | 8.46 | 7.5-9 | — |
| Paragon, .....Bryant & Soule..... | Middleboro.... | 10.53 | 9.5-12 | 8.11 | 7.5-9 | — |
| Paragon, .....J. W. Doon..... | Natick ..... | 11.23 | 10.5-12 | 8.65 | 7.5-9 | — |
| Paragon, .....G. H. Reed..... | West Acton ... | 10.71 | 10.5-12 | 8.59 | 7.5-9 | — |
| Wirthmore, .....Eastern Grain Co..... | Bridgewater... | 10.53 | 9.5-12 | 9.34 | 7.5-9 | — |
| Wirthmore, .....Wallace Grain Co .... | Clinton..... | 10.36 | 9.5-12 | 8.36 | 7.5-9 | — |
| Wirthmore, .....F. F. Woodward & Co. | Fitchburg ..... | 11.23 | 9.5-12 | 9.81 | 7.5-9 | — |
| Wirthmore, .....Haverhill Grain Co .. | Haverhill..... | 9.74 | 9.5-12 | 7.69 | 7.5-9 | — |
| Wirthmore, .....A. T. Knight & Co.... | Hudson ..... | 11.41 | 9.5-12 | 10.30 | 7.5-9 | — |
| Wirthmore, .....R. D. Bowen ..... | Leominster .... | 10.88 | 9.5-12 | 6.58 | 7.5-9 | — |
| Wirthmore, .....Conant & Co ..... | Littleton ..... | 10.32 | 9.5-12 | 8.50 | 7.5-9 | — |
| Yellow, .....C. G. Burnham ..... | Holyoke ..... | 10.62 | 10-12 | 8.38 | 7-9 | — |
| Yellow, .....A. D. Potter..... | Orange..... | 10.49 | 10-12 | 8.78 | 7-9 | — |
| **Decatur Cereal Co., Decatur, Ill.** | | | | | | |
| OXO,.....J. E. Merrick & Co.... | Amherst..... | 10.40 | 11.02 | 8.09 | 7.70 | — |
| OXO,.....Cutler Co ..... | S. Framingham | 10.27 | 11.02 | 8.50 | 7.70 | — |
| OXO,.....H. H. Capen..... | Spencer ..... | 11.32 | 11.02 | 10.47 | 7.70 | — |
| **Deutsch & Sickert, Milwaukee, Wis.** | | | | | | |
| Success,.....Wallace Grain Co .... | Clinton..... | 11.14 | 11.00 | 9.93 | 7.00 | 4.78 |
| Success,.....C. G. Burnham. ..... | Holyoke ..... | 11.32 | 11.00 | 10.31 | 7.00 | 4.55 |
| **Evans Milling Co., Indianapolis, Ind.** | | | | | | |
| Evan's, .....H. Bruckman ..... | Lawrence ..... | 12.29 | 10.00 | 7.90 | 8.00 | — |
| Evan's, .....Webster Grain Co .... | Lawrence ..... | 11.41 | 10.00 | 9.59 | 8.00 | — |
| **Rodney J. Hardy & Sons, Boston.** | | | | | | |
| Lenox.....R. D. Bowen ..... | Leominster.... | 10.97 | 10-12 | 7.67 | 7.5-9 | — |
| **W. H. Haskell & Co., Toledo, Ohio.** | | | | | | |
| J. O. Ellison Co ..... | Haverhill..... | 10.40 | 10.25 | 8.69 | 8-10 | — |
| Bliss & Co..... | Taunton ..... | 10.05 | 10.25 | 7.76 | 8-10 | — |
| **Hunter Bros. Milling Co., St. Louis.** | | | | | | |
| J. Shea ..... | Lawrence ..... | 10.05 | 8.5-10.5 | 8.14 | 7-8.5 | — |
| A. D. Potter..... | Orange..... | 10.79 | 8.5-10.5 | 9.53 | 7-8.5 | — |
| **Hunter-Robinson-WenzMil.Co.,St.Louis** | | | | | | |
| Capital, .....J. B. Garland & Son .. | Worcester..... | 10.97 | 11.02 | 8.87 | 7.78 | — |

## HOMINY MEAL—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **Husted Milling Co., Buffalo.** | | | | | | |
| F. E. Smith ..... | Amherst ..... | 10.97 | 9-11 | 8.37 | 6-8 | — |
| J. A. Bouvier ..... | Fall River..... | 10.05 | 9-11 | 7.59 | 4-6 | — |
| **H. E. McEachron Co., Wausau, Wis.** | | | | | | |
| Lexington Grain Co .. | Lexington..... | 11.14 | 11.25 | 8.25 | 8.50 | — |
| **Miner-Hillard Mill. Co., WilkesBarre,Pa.** | | | | | | |
| W. N. Potter Sons&Co | Hadley..... | 11.06 | 10-12 | 9.16 | 7.5-9 | — |
| Lohan Bros ..... | Marblehead ... | 11.19 | 10-12 | 8.50 | 7.5-9 | — |
| Taunton Grain Co.... | Taunton ..... | 11.27 | 10-12 | 8.98 | 7.5-9 | — |
| Taunton Grain Co.... | Taunton ..... | 10.97 | 10-12 | 7.91 | 7.5-9 | — |
| Wilson & Holden .... | Worcester .... | 11.14 | 10-12 | 8.86 | 7.5-9 | — |
| | | | | | | — |
| **Patent Cereals Co., Geneva, N. Y.** | | | | | | |
| J. A. Bouvier ..... | New Bedford.. | 10.71 | 10-11 | 7.34 | 7-8 | — |
| **Quaker Oats Co., Chicago.** | | | | | | |
| Curley Bros..... | Wakefield..... | 10.44 | 10.25 | 7.95 | 8.00 | — |
| **Geo. B. Robinson, Jr., New York.** | | | | | | |
| O. F. Metcalf & Sons. | Franklin ..... | 11.23 | 9-11 | 10.84 | 6-8 | — |
| J. B. Garland & Son .. | Worcester .... | 10.88 | 9-11 | 11 12 | 6-8 | — |
| **J. E. Soper & Co., Boston.** | | | | | | |
| Blue Ribbon, ....Mackenzie & Winslow | Fall River .... | 10.90 | 10.00 | 7.76 | 8.00 | — |
| Blue Ribbon, ....Bryant & Soule ..... | Middleboro.... | 10.58 | 10.00 | 7.81 | 8.00 | — |
| **Suffern, Hunt & Co., Decatur, Ill.** | | | | | | |
| Acme,.....A. Dodge & Sons Corp. | Beverly ..... | 11.19 | 9.3-11 | 9.50 | 7.1-9 | — |
| Acme,.....J. D. Norton..... | Warren ..... | 11.06 | 9.3-11 | 9.11 | 7.1-9 | — |
| Acme,.....Cutler Co ..... | Warren ..... | 10.09 | 9.3-11 | 7.54 | 7.1-9 | — |
| **Toledo Elevator Co., Toledo, Ohio.** | | | | | | |
| †Star, .....F. G. Cover & Co .... | Lowell ..... | 8.65 | 7-10 | 6.22 | 6.5-8 | 9.48 |
| †Star, .....F. G. Cover & Co .... | Lowell ..... | 8.95 | 7-9 | 6.72 | 5.5-7 | 9.88 |
| †Star, .....S. L. Davenport & Son | North Grafton. | 9.09 | 7-10 | 6.27 | 6.50 | 11.21 |
| †Star. .....Spring'd Flour&Gr.Co. | Springfield .... | 8.51 | 7-10 | 5.81 | 6.5-8 | 6.62 |
| †Star, .....F. Diehl & Son ..... | Wellesley ..... | 9.17 | 7.00 | 6.94 | 6.00 | 10 15 |
| Highest ..... | ..... | 11.84 | — | 11.12 | — | — |
| Lowest ..... | ..... | 9.21 | — | 5.75 | — | — |
| Average..... | ..... | 11.21 | — | 8.61 | — | — |

† Contains ground corn cob, and not sold as straight hominy meal. Not included in average.

## PROVENDER.

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| **Ground by Retailer.** | | % | % | % | % | % |
| E. J. Adams..... | Gt. Barrington. | 9.65 | — | 3.68 | — | 4.42 |
| H. C. Bowen & Son .. | Cheshire ..... | 9.30 | — | 3.35 | — | 4.41 |
| C. G. Burnham ..... | Holyoke..... | 9.48 | — | 3.74 | — | 3.66 |
| F. G. Cover & Co .... | Lowell ..... | 10.71 | — | 4.66 | — | 4.46 |
| E. A. Cowee..... | Worcester..... | 10.36 | — | 4.23 | — | 3.65 |
| Dennison Plummer Co | New Bedford.. | 9.13 | — | 3.32 | — | 5.28 |
| Dresser Hull Co ..... | Lee ..... | 10.01 | — | 3 87 | — | 3.06 |
| J. B. Garland & Son .. | Worcester..... | 10.31 | — | 3.88 | — | 5.54 |
| Ham & Co ..... | Woburn ..... | 10.71 | — | 4.00 | — | 5.10 |
| E. F. Howard ..... | Ware ..... | 10.05 | — | 3.90 | — | 4.06 |
| H. W. Miller ..... | Pittsfield ..... | 10.58 | — | 4.03 | — | 5.22 |
| I. Morton & Co. ..... | Plymouth ..... | 9.56 | — | 3.53 | — | 3.85 |
| J. B. Norton..... | Warren ..... | 9.61 | — | 3.85 | — | 5.55 |
| N. Hatfield Grain Co.. | N. Hatfield.... | 9 04 | — | 3.83 | — | 2.70 |
| Prentiss, Brooks & Co. | Holyoke..... | 9.79 | — | 3.87 | — | 3.09 |
| (½ and ½), ..... Red Mill Feed Co .... | Ashley Falls... | 10.75 | — | 4 23 | — | 5.10 |
| C. H. Smith ..... | Dighton..... | 10.09 | — | 4.65 | — | 5.12 |
| Sprague & Williams .. | S. Framingham | 10.09 | — | 4.07 | — | 4.05 |
| Spring'd Flour & Gr.Co | Springfield .... | 9.79 | — | 3.86 | — | 4.00 |
| L. M. Stanbridge ..... | Greenfield..... | 10.01 | — | 4.02 | — | 4.06 |
| G. C. Turner ..... | Chester ..... | 9.13 | — | 3.90 | — | 2.89 |
| C. P. Washburn ..... | Middleboro.... | 10.97 | — | 4.47 | — | 7.39 |
| *Bran and corn,.... A. F. Sanctuary ..... | Amherst ..... | 11.49 | — | 4.16 | — | 4.81 |
| **Buffalo Cereal Co., Buffalo.** | | | | | | |
| (½ and ½), ..... Lenox Coal Co..... | Lenoxdale..... | 10 38 | 9.00 | 4.11 | 4.00 | 4 27 |
| **J. B. Garland & Son, Worcester.** | | | | | | |
| O. F. Metcalf & Son.. | Franklin ..... | 10.32 | — | 4.20 | — | 5.11 |
| **Husted Milling Co., Buffalo.** | | | | | | |
| (½ and ½), ..... G. F. Pease ..... | Chester ..... | 10 50 | — | 4.87 | — | 7.35 |
| (½ and ½), ..... G. F. Pease ..... | Chester ..... | 9 92 | — | 5.37 | — | 5.16 |
| **Narragansett Mill. Co., E. Providence, R.I.** | | | | | | |
| Taunton Grain Co .... | Taunton..... | 8.91 | 9.00 | 3.94 | 3.80 | 2.60 |
| **Smith, Northam Milling Co., Hartford, Ct.** | | | | | | |
| H. Bullikian..... | Franklin ..... | 9.35 | 9 00 | 4.00 | 4.00 | 3.11 |
| **Stratton & Co., Concord, N. H.** | | | | | | |
| (½ and ½), ..... I. J. Rowell ..... | Pepperell..... | 9.83 | — | 3.94 | — | 3.91 |
| Highest ..... | ..... | 10.97 | — | 5.37 | — | 7.39 |
| Lowest ..... | ..... | 8.91 | — | 3.32 | — | 2.60 |
| Average..... | ..... | 9.99 | — | 4.05 | — | 4.43 |

* Not included in average.

## CORN AND OAT FEEDS.

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **American Hominy Co., New York.** | | | | | | |
| Hexagon, ..... A. Dodge & Sons Corp. | Beverly ..... | 8.60 | 6-10 | 5.75 | 5-8 | 11.81 |
| Valor, ..... Lohan Bros. ..... | Marblehead ... | 8.08 | 6.50 | 3.69 | 3.50 | 8.91 |
| Valor, ..... P. Foisy ..... | New Bedford.. | 10.14 | 5-8 | 3.74 | 2.5-4.5 | 10.89 |
| Valor, ..... J. W. Wilder ..... | Springfield .... | 7.28 | 8.00 | 2.96 | 3.50 | 11.33 |
| **Buffalo Cereal Co., Buffalo.** | | | | | | |
| Chop, ..... I. J. Rowell ..... | Pepperell ..... | 8.58 | 7-8 | 3 01 | 3-4 | 10.31 |
| Horse, ..... Griffen Bros ..... | Fall River .... | 11.65 | 10-12 | 5.23 | 4-5 | 8 51 |
| Stock, ..... C. H. Felker ..... | Brockton ..... | 8.86 | 8-9 | 5.27 | 4-5 | 7.31 |
| Stock, ..... A. Culver Co ..... | Rockland ..... | 9.65 | 8-9 | 5.33 | 4-5 | 6.92 |
| **Burbeck & Brett, North Abington.** | | | | | | |
| All Right, ..... Burbeck & Brett ..... | N. Abington... | 9.48 | 9-11 | 7.89 | 4-5 | 8.07 |
| **Chas. M. Cox Co., Boston.** | | | | | | |
| Charlestock, ..... W. J. Meek ..... | Fall River .... | 6.08 | 6-9 | 2.56 | 3-5 | 17.10 |
| Charlestock, ..... J. Altman ..... | New Bedford.. | 7.50 | 6-9 | 3.41 | 3-5 | 12.29 |
| Special, ..... C. H. Symmes ..... | Winchester.... | 10.27 | 9-11 | 5.75 | 4-5 | 12.44 |
| Wirthmore, ..... J. E. Merrick & Co ... | Amherst ..... | 9.79 | 10-12 | 7.02 | 4-5 | 7.52 |
| Wirthmore, ..... W. R. Ross & Co..... | Holyoke ..... | 10.09 | 10-12 | 7.92 | 4-5 | 6.91 |
| **Chapin & Co., Boston.** | | | | | | |
| Pearl, ..... J. B. Cover & Co ..... | Lowell ..... | 7.68 | 6-10 | 3.21 | 3-5 | 6.12 |
| **J. Cushing & Co., South Acton.** | | | | | | |
| Acton's Best, .... J. Cushing & Co ..... | South Acton... | 9.92 | 10-12 | 7.83 | 4-5 | 8.10 |
| **F. W. Dorr & Co., Newton Center.** | | | | | | |
| Matchless, ..... F. W. Dorr & Co..... | Newton Center. | 9.83 | 10.00 | 6.97 | 4-5 | 7.54 |
| Matchless, ..... F. W. Dorr & Co..... | Newton Center. | 9.74 | 10-12 | 7.22 | 4-5 | 5.75 |
| **Empire Mills, Olean, N. Y.** | | | | | | |
| Empire, ..... J. A. Bouvier. ..... | New Bedford.. | 8.43 | 7.63 | 3.68 | 2.97 | 7.07 |
| **J. B. Garland & Son, Worcester.** | | | | | | |
| Red Tag A, ..... J. B. Garland & Son .. | Worcester .... | 11.63 | 12.00 | 6.02 | 3.50 | 13.48 |
| Red Tag A, ..... J. B. Garland & Son .. | Worcester .... | 11.98 | 12.00 | 5.61 | 3.50 | 10.74 |
| Red Tag B, ..... H. W. Kimball ..... . | Westboro ..... | 8.82 | 10.00 | 5.02 | 3.25 | 14.61 |
| Red Tag B, ..... J. B, Garland & Son .. | Worcester .... | 9 92 | 10.00 | 5.33 | 3.25 | 15.29 |
| Red Tag B, ..... J. B. Garland & Son .. | Worcester .... | 10.58 | 10.00 | 5 22 | 3.25 | 13.17 |
| **Great Western Cereal Co., Chicago.** | | | | | | |
| Boss, ..... Geo. F. Wetherbee Est. | Gardner..... | 8.51 | 8-10 | 4.13 | 3.50 | 8.68 |
| Boss, ..... C. G. Burnham ..... | Holyoke ..... | 8.69 | 8-10 | 4 72 | 3.5-5 | 10.22 |
| Boss, ..... Mackenzie & Winslow | Fall River .... | 8.82 | 8-10 | 3.11 | 3.5-5 | 9 04 |
| Sterling, ..... Mackenzie & Winslow | Fall River .... | 11.51 | 10.00 | 2.84 | 4.00 | 7.06 |
| Sterling, ..... E. F. Wilbur & Son... | Marshfield..... | 10.01 | 10.00 | 3.72 | 4.00 | 11.00 |
| **W. H. Haskell & Co., Toledo, Ohio.** | | | | | | |
| Haskell's, ..... Bliss & Co..... | Taunton ..... | 9.90 | 8-10 | 7.97 | 4-5 | 7.16 |
| Haskell's, ..... Bliss & Co..... | Taunton ..... | 10.05 | 8-10 | 7.13 | 4-5 | 8.51 |

## CORN AND OAT FEEDS—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **H-O Co., Buffalo.** | | | | | | |
| De Fi,.....Webster Grain Co.... | Lawrence ..... | 7.19 | 8.30 | 2.81 | 3.00 | 14.81 |
| De Fi,.....Lexington Grain Co .. | Lexington ... | 7.37 | 8.00 | 2.90 | 3.00 | 13.89 |
| N. E. Stock,.....J. O. Ellison Co ..... | Haverhill..... | 7.99 | 9.00 | 5.18 | 4.00 | 14.65 |
| N. E. Stock,.....C. G. Burnham ..... | Holyoke..... | 8.82 | 9.00 | 5.87 | 4.00 | 14.09 |
| N. E. Stock,.....E. F. Wilbur & Son .. | Marshfield .... | 8.95 | 9.00 | 4.98 | 4.00 | 11.53 |
| N. E. Stock,.....Jaquith & Co ..... | Woburn ..... | 9.17 | 9.00 | 4.98 | 4.00 | 11.56 |
| **Husted Milling & Elevator Co., Buffalo.** | | | | | | |
| Husted Stock,....Mackenzie & Winslow | Fall River .... | 9.06 | 8-10 | 4.44 | 4-6 | 6.91 |
| Eclipse,.....W. D. French ..... | Sheffield ..... | 11.32 | 9-11 | 4.92 | 4-6 | 7.05 |
| Monarch, .....W. N. Potter Grain Co | Gardner ..... | 8.65 | 7.5-9 | 4.10 | 3.5-4.5 | 7.85 |
| Monarch, .....P. Foisy..... | New Bedford.. | 9.17 | 7-9 | 5.28 | 3-4.5 | 8.63 |
| Regal,.... .....G. H. Pease..... | Chester ..... | 8.25 | 7-9 | 3.31 | 3-4 | 9.93 |
| **Imperial Grain & Milling Co., Toledo, O.** | | | | | | |
| Steam Cooked,....G. F. Green Coal Co.. | Campello..... | 9.39 | 10.00 | 4.18 | 5.25 | 3.04 |
| Steam Cooked,....Mackenzie & Winslow | Fall River .... | 9.74 | 10.00 | 4.07 | 5.25 | 2.54 |
| Steam Cooked,....C. G. Burnham..... | Holyoke ..... | 9.83 | 10.00 | 4.36 | 5.00 | 2.62 |
| Steam Cooked,....G. H. Reed ..... | West Acton ... | 10.18 | 10.00 | 4.06 | 5.25 | 3.39 |
| Corn, oat and barley,C. G. Burnham ..... | Holyoke ..... | 8.39 | 8.90 | 3.49 | 3.75 | 11.58 |
| Corn, oat and barley,G. H. Reed ..... | West Acton ... | 8.69 | 8.90 | 3.60 | 3.75 | 10.80 |
| **Malden Grain Co., Malden.** | | | | | | |
| Excel (XL), .....Malden Grain Co..... | Malden ..... | 10.53 | 12.73 | 3.77 | 3.48 | 5.85 |
| Excel (XL), .....Malden Grain Co..... | Malden ..... | 11.14 | 12.73 | 3.32 | 3.48 | 5.95 |
| **Noyes & Colby, Boston.** | | | | | | |
| New Era, .....E. W. Kenerson ..... | Worcester..... | 10.79 | 10-12 | 7.61 | 4-5 | 7.53 |
| **Oneonta Milling Co., Oneonta, N. Y.** | | | | | | |
| Provender, .....Mackenzie & Winslow | Fall River .... | 8.53 | 8.75 | 2.29 | 3.50 | 10.45 |
| Provender, .....Potter Bros. & Co. .... | North Adams.. | 8.12 | 8.75 | 2.14 | 3.50 | 6.33 |
| **Quaker Oats Co., Chicago.** | | | | | | |
| Schumacher's,....N. Paquin & Sons .... | Fall River .... | 11.01 | 10-12 | 4.15 | 4-5 | 10.76 |
| Schumacher's,....N. Paquin & Sons .... | Fall River .... | 11.49 | 10.00 | 4.20 | 4.00 | 9.71 |
| Schumacher's,....H. G. Hill & Co ..... | Williamsburg.. | 11.14 | 10.00 | 3.93 | 4.00 | 8.98 |
| Victor,.....H. G. Puffer Co..... | Springfield .... | 7.90 | 7.5-9 | 3.46 | 3-4 | 9.55 |
| Victor, .....J. Paull & Co ..... | Taunton ..... | 7.77 | 7.5-9 | 4.06 | 3-4.5 | 13.16 |
| Victor,.....J. C. Paull ..... | Taunton ..... | 8.82 | 7.5-9 | 3.54 | 3-4 | 7.10 |
| **G. H. Reed, West Acton.** | | | | | | |
| Our, .....G. H. Reed ..... | West Acton ... | 10.44 | 10.44 | 4.43 | 4.43 | 12.24 |
| **Sykes Coal & Grain Co., North Adams.** | | | | | | |
| Best, .....Sykes Coal & Grain Co. | North Adams.. | 9.48 | 10-12 | 7.33 | 4-5 | 7.74 |
| Best, .....Sykes Coal & Grain Co. | North Adams.. | 10.14 | 10-12 | 7.34 | 4-5 | 7.80 |
| **F. F. Woodward & Co., Fitchburg.** | | | | | | |
| Veribest, .....F. F. Woodward & Co. | Fitchburg ..... | 10.09 | 10-12 | 7.99 | 4-5 | 6.90 |
| Veribest, .....F. F. Woodward & Co. | Fitchburg ..... | 11.43 | 10-12 | 7.62 | 4-5 | 5.59 |

## FORTIFIED STARCHY FEEDS.

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **American Hominy Co., New York.** | | | | | | |
| June Pasture,.....P. Foisy..... | New Bedford.. | 14.26 | 12-15 | 9.64 | 4-8 | 12.42 |
| **J. W. Biles Co., Cincinnati, Ohio.** | | | | | | |
| Ubiko Horse .....Red Mill Feed Co ... | Ashley Falls... | 18.12 | 16.00 | 7.43 | 6.00 | 6.78 |
| **Buffalo Cereal Co., Buffalo.** | | | | | | |
| Horse, .....W. J. Meek ..... | Fall River .... | 11.45 | 12.00 | 5.92 | 4.50 | 7.56 |
| Horse, .....F. H. Crane & Son ... | Quincy Adams. | 12.60 | 10-12 | 5.07 | 4-5 | 8.59 |
| Horse, .....Cutler Grain Co ..... | S. Framingham | 10.62 | 12.00 | 3.88 | 4.50 | 7.08 |
| **Jacob Burkhardt, Beverly.** | | | | | | |
| Colonial, .....J. Burkhardt..... | Beverly ..... | 14.35 | 12.00 | 5.21 | 6.00 | 8.41 |
| Colonial, .....J. Burkhardt..... | Beverly ..... | 13.51 | 12.00 | 5.29 | 6.00 | 8.08 |
| **Green River Grain Co., Greenfield.** | | | | | | |
| O. K. Horse, .....W. N. Potter & Sons.. | Greenfield .... | 12.29 | 12.00 | 4.50 | 4.25 | 5.54 |
| O. K. Horse, .....W. N. Potter & Sons.. | Greenfield .... | 13.25 | 12.00 | 4.43 | 4.25 | 5.89 |
| **H-O Co., Buffalo.** | | | | | | |
| Algrane Horse ...G. F. Greene Coal Co.. | Campello..... | 11.41 | 12 00 | 4.50 | 4.50 | 11.07 |
| Algrane Horse,...Lenox Coal Co..... | Lenoxdale .... | 11.58 | 12.00 | 4.61 | 4.50 | 11.36 |
| Algrane Horse,...Cutler Grain Co... .. | S. Framingham | 12.99 | 12.00 | 4.52 | 4.50 | 11.11 |
| **Husted Milling & Elevator Co., Buffalo.** | | | | | | |
| Husted Horse,....Mackenzie & Winslow | Fall River .... | 13.69 | 12-14 | 4.27 | 4-5 | 6.13 |
| **Quaker Oats Co., Chicago.** | | | | | | |
| Quaker Dairy,....Torrence, Vary & Co.. | Lynn..... | 13.34 | 12-14 | 3 61 | 3-4 | 14.74 |
| Quaker Dairy,....A. P. Ames & Co..... | Peabody ..... | 18.14 | 12-14 | 4 50 | 3-4 | 11.80 |
| **Ropes Bros., Salem.** | | | | | | |
| Horse,.....Ropes Bros ..... | Salem ..... | 15.67 | 16.00 | 5.29 | 5.00 | 8.00 |
| Horse,.....Ropes Bros ..... | Salem ..... | 17.68 | 16.00 | 5.27 | 5.00 | 8.13 |

## ALFALFA FEEDS.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Corno Mills Co., East St. Louis.** | | | | | | |
| Corno,.....J. O. Ellison & Co.... | Haverhill..... | 9.39 | 10.00 | 3.56 | 3.50 | 12.23 |
| Corno.....J. O. Ellison & Co.... | Haverhill..... | 9.52 | 10.00 | 3.71 | 3.50 | 14.88 |
| **Kornfalfa Feed Mill.Co., Kansas City, Mo.** | | | | | | |
| Kornfalfa,.....Mackenzie & Winslow | Fall River .... | 10.49 | 12.00 | 3.19 | 4.00 | 12.87 |
| ***Otto Wiess Alf. St. Food Co., Wichita, Kan** | | | | | | |
| Alfalfa Oat, .....Pierce & Winn..... | Arlington..... | 13.77 | 12.00 | 3 64 | 3.50 | 14.82 |
| Alfalfa Oat. .....Torrence, Vary & Co.. | Lynn..... | 13.38 | 12.00 | 3.32 | 3.50 | 12.99 |
| Alfalfa Stock, ....Pierce & Winn..... | Arlington..... | 13.34 | 12.00 | 4.99 | 3.50 | 11.05 |
| Alfalfa Stock, ....Torrence, Vary & Co.. | Lynn..... | 13.42 | 12.00 | 2.99 | 3.50 | 12.97 |
| Alfalfa Stock, ....Marlboro Grain Co ... | Marlboro..... | 11.84 | 12.00 | 3.32 | 3 50 | 11.09 |

* Otto Wiess Alfalfa Stock Food Co.

## OAT FEED.

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **Chas. M. Cox Co., Boston.** | | | | | | |
| O. M. F., .....Livingston Grain Co.. | Lowell ..... | 5.44 | 5-7 | 2.80 | 2-4 | 25.11 |
| O. M. F., .....Sykes Coal & Grain Co | North Adams.. | 5.00 | 5 50 | 2.59 | 2.50 | 26.12 |
| O. M. F., .....G. H. Reed..... | West Acton.... | 5.79 | 5-7 | 2.55 | 2-4 | 27.25 |
| **H-O Co., Buffalo.** | | | | | | |
| Jim Dandy, .....N. A. Seymour ..... | Lancaster ..... | 8.08 | 7.50 | 3.02 | 2.75 | 22.42 |
| Jim Dandy, .....Lexington Grain Co .. | Lexington ..... | 7.46 | 7.50 | 2.92 | 2.75 | 22.45 |

## MISCELLANEOUS STARCHY FEEDS.

| | | | | | | |
|---|---|---|---|---|---|---|
| **H. H. Brown & Bros., Boston.** | | | | | | |
| Dried Grains, ....Lexington Grain Co... | Lexington .... | 12.85 | 10.00 | 3.90 | 2.50 | 12.03 |
| **Chas. M. Cox Co., Boston.** | | | | | | |
| Barley Feed,.....Malden Grain Co. .... | Malden..... | 7.24 | — | 2.03 | — | 19.36 |
| **Husted Milling & Elevator Co., Buffalo.** | | | | | | |
| Germaline, .....A. Dodge Sons Corp. | Beverly ..... | 8.34 | 9-11 | 3.13 | 3-5 | — |
| Germaline, .....Mackenzie & Winslow | Fall River .... | 9.56 | 9-11 | 3.88 | 3-5 | — |
| **Larrowe Milling Co., Detroit, Mich.** | | | | | | |
| Dried Beet Pulp,..W. E. Bryant & Co .. | Brockton..... | 10.53 | 8.00 | 0.36 | 0.50 | 19.18 |
| Dried Beet Pulp,..J. A. Bouvier ..... | New Bedford.. | 8.32 | 8.00 | 0.69 | 0.50 | 17.99 |
| Dried Beet Pulp,..Bliss & Co..... | Taunton ..... | 9.88 | 8-10 | 0.92 | 0.5-1.0 | 21.86 |
| **Lyons Beet Sugar Refin. Co.,Lyons,N.Y.** | | | | | | |
| Dried Beet Pulp,..City Mills Co ..... | Holyoke ..... | 11.67 | 8.00 | 0.44 | 0.50 | — |
| **Natural Food Co., Niagara Falls, N. Y.** | | | | | | |
| Shredded wheat waste,W. E. Bryant & Co.. | Brockton..... | 12.11 | 10.00 | 2.62 | 1.50 | — |
| Shredded wheat waste,Ropes Bros..... | Salem ..... | 11.49 | 10.00 | 1.92 | 1.50 | — |
| **Quaker Oats Co., Chicago.** | | | | | | |
| Maz-All-Corn Feed, .P. W. Eaton..... | Williamstown . | 10.27 | 9.50 | 2.34 | 1.40 | 1.06 |
| **Heffner Milling Co., Circleville, Ohio.** | | | | | | |
| Ground Corn Cobs,J. B. Norton.... ..... | Warren ..... | 1.84 | — | 0.44 | — | 31.12 |
| **Toledo Elevator Co., Toledo, Ohio.** | | | | | | |
| Star Cotton Feed, N. Hatfield Grain Co.. | N. Hatfield.... | 12.51 | 10-12 | 5.28 | 6.5-8 | 9.61 |

# III. Poultry Feeds.

## MEAT SCRAPS.

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Ash. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| First Grade (over 45% Protein). | | % | % | % | % | % |
| **American Agric. Chem. Co., New York.** | | | | | | |
| G. F. Green Coal Co.. | Campello..... | 51.95 | 40-60 | 14.85 | 6-8 | 19.91 |
| Dresser Hull Co..... | Lee ..... | 53.00 | 40-60 | 15.38 | 5-6 | 20.74 |
| **Joseph Breck & Sons, Boston.** | | | | | | |
| Pierce & Winn..... | Arlington..... | 47.12 | 43-50 | 14.02 | 12-16 | 24.70 |
| **Burlington Rendering Co., Burlington, Vt.** | | | | | | |
| D. J. Harrington..... | Turners Falls.. | 46.77 | 35-45 | 14.03 | 10-15 | 29.58 |
| **Butchers Rendering Co., Fall River.** | | | | | | |
| A. Milot & Son..... | Taunton ..... | 49.97 | 40-60 | 11.80 | 15-20 | 26.20 |
| **A. Culver Co., Rockland.** | | | | | | |
| Special, .....A. Culver Co ..... | Rockland ..... | 45.02 | 46-55 | 19.50 | 19-25 | 23.92 |
| **J. C. Dow & Co,, Boston.** | | | | | | |
| H. Bullikian..... | Franklin ..... | 47.57 | 43-50 | 20.23 | 12-15 | 22.33 |
| **Geo. E. Marsh Co., Lynn.** | | | | | | |
| Lummus & Parker.... | Danversport... | 49.27 | 45-50 | 15.72 | 10-15 | 25.03 |
| Green & Co,..... | Marblehead ... | 50.63 | 45-50 | 13.20 | 10-15 | 26.12 |
| **N. E. Dressed Meat & Wool Co., Boston.** | | | | | | |
| S. B. Green..... | Watertown .... | 56.38 | 53-57 | 14.50 | 10-15 | 18.48 |
| **Park & Pollard Co., Boston.** | | | | | | |
| Blue Ribbon.....Pierce & Winn..... | Arlington..... | *80.81 | 74-78 | 10.82 | — | 1.61 |
| Blue Ribbon.....Taunton Grain Co.... | Taunton ..... | 64.67 | 60-80 | 14.15 | 10-13 | 7.84 |
| **Pawtucket Rend. Co., Pawtucket, R. I.** | | | | | | |
| Taunton Grain Co.... | Taunton ..... | 48.79 | 40-50 | 14.45 | 8-12 | 29.17 |
| **Richmond Abattoir, Richmond, Va.** | | | | | | |
| Rava,.....Lexington Grain Co... | Lexington .... | *87.53 | 85.00 | 6.16 | 7.00 | 2.68 |
| **Swift's Lowell Fertilizer Co., Boston.** | | | | | | |
| Mackenzie & Winslow | Fall River .... | 49.84 | 40-50 | 10.98 | 10-15 | 28.42 |
| Average..... | ..... | 50.84 | — | 14.83 | — | 23.26 |
| Second Grade (below 45% Protein). | | | | | | |
| **Andrews & Spellman, Providence, R. I.** | | | | | | |
| Anchor, .....C. B. Benedict..... | Gt. Barrington. | 39.14 | 40-50 | 9.67 | 8-10 | 35.57 |
| Taft Bros ..... | Uxbridge..... | 38.79 | 25-30 | 11.63 | 6-8 | 38.10 |
| N. Paquin & Sons .... | Fall River .... | 40.68 | 25-30 | 11.71 | 6-8 | 35.61 |
| **Beach Soap Co., Lawrence.** | | | | | | |
| H. Bruckman..... | Lawrence .... | 37.47 | 40.00 | 15.69 | 20.00 | 35.59 |

* Not included in average.

## MEAT SCRAPS—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Ash. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **Dennison Plummer Co., New Bedford.** | | | | | | |
| Dennison Plummer Co. | New Bedford.. | 39.66 | 40-60 | 9.91 | 10-15 | 38.32 |
| **J. B. Garland & Son, Worcester.** | | | | | | |
| J. B. Garland & Son .. | Worcester .... | 40.70 | 40-50 | 19.75 | 10-12 | 28.66 |
| **W. D. Higgins, South Framingham.** | | | | | | |
| Cutler Grain Co ..... | S. Framingham | 37.38 | 45-65 | 16.15 | 20.00 | 32.16 |
| **Home Soap Co., Worcester.** | | | | | | |
| E. A. Cowee..... | Worcester .... | 37.60 | 50.00 | 20.45 | 20.00 | 27.94 |
| **A. Lord & Co., Chelsea.** | | | | | | |
| Mackenzie & Winslow | Fall River .... | 38.48 | 40-60 | 16.54 | 17-19 | 31.39 |
| W. L. Palmer..... | Medway ..... | 35.80 | 30-60 | 17.47 | 17-19 | 36.89 |
| **S. A. Meager Co., Milton.** | | | | | | |
| F. H. Crane & Sons .. | Quincy Adams. | 41.85 | 40-50 | 14.23 | 15-20 | 28.17 |
| F. H. Crane & Sons .. | Quincy Adams. | 44.45 | 50-55 | 17.97 | 15-20 | 29.04 |
| **Pilgrim Rendering Co., Plymouth.** | | | | | | |
| C. P. Washburn ..... | Middleboro.... | 32.87 | 40-60 | 19.07 | 10-20 | 35.32 |
| **Ross Bros., Worcester.** | | | | | | |
| Thatcher & Ireland... | Littleton ..... | 38.44 | 45-50 | 22.24 | 15-20 | 28.90 |
| **Springfield Rendering Co., Springfield.** | | | | | | |
| Prentiss, Brooks & Co. | Holyoke ..... | 42.55 | 40-60 | 13.24 | 15-20 | 33.72 |
| **J. A. Torrey, Rockland.** | | | | | | |
| No. 1,.....A. Culver Co..... | Rockland..... | 44.02 | 46.00 | 20.12 | 19.00 | 23.56 |
| No. 2,.....A. Culver Co..... | Rockland..... | 40.36 | 40-45 | 14.98 | 15-20 | 29.04 |
| No. 2,.....A. Culver Co..... | Rockland..... | 44.40 | 44.00 | 14.82 | 19.00 | 30.25 |
| **Whitman & Pratt Rendering Co., Lowell.** | | | | | | |
| Wilder & Wotton..... | Lowell ..... | 43 75 | 40-50 | 15.72 | 10-15 | 27.53 |
| Average..... | ..... | 39.92 | — | 15.86 | — | 32.04 |

## MEAT AND BONE MEAL.

| | | | | | | |
|---|---|---|---|---|---|---|
| **American Agric. Chem. Co., New York.** | | | | | | |
| Bradley's, .....D. Seffens..... | Conway ..... | 35.58 | 30.00 | 10.80 | 8.00 | 37.84 |
| **Armour Fertilizer Works, Chicago.** | | | | | | |
| W. F. Filmore..... | Palmer..... | 47.12 | 42.00 | 8.57 | 8.00 | 29.40 |
| **Beach Soap Co., Lawrence.** | | | | | | |
| Cummings, Chute & Co | Woburn..... | 30.98 | 30.00 | 9.97 | 10.00 | 47.37 |

## MEAT AND BONE MEAL—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat | | Ash. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **Bowker Fertilizer Co., Boston.** | | | | | | |
| Mackenzie & Winslow | Fall River .... | 39.88 | 40.00 | 11.42 | 5.00 | 35.71 |
| Phillips, Bates & Co... | Hanover ..... | 43.26 | 40.00 | 9.24 | 5.00 | 33.01 |
| J. Cushing & Co ..... | Hudson ..... | 47.87 | 40.00 | 8.80 | 5.00 | 31.89 |
| **Joseph Breck & Sons, Boston.** | | | | | | |
| Poultry Meal, ....W. L. Palmer..... | Medway..... | 31.41 | 32-35 | 10.29 | 10-12 | 40.42 |
| Poultry Meal, ....W. L. Palmer..... | Medway..... | 30.01 | 32-35 | 9.25 | 10-12 | 41.80 |
| **J. C. Dow Co., Boston.** | | | | | | |
| Poultry Meal, ....Marlboro Grain Co.... | Marlboro..... | 29.71 | 32-35 | 9.51 | 10-12 | 39.92 |
| **Hinckley Rendering Co., Somerville.** | | | | | | |
| A. Culver Co..... | Rockland..... | 35.87 | 35-50 | 8.46 | 8-15 | 43.07 |
| **Swift's Lowell Fertilizer Co., Boston,** | | | | | | |
| Eastern Grain Co..... | Bridgewater ... | 37.97 | 35-45 | 12.59 | 8-15 | 39.60 |
| Average..... | ..... | 37.24 | — | 9.90 | — | 38.18 |

## BONE MEAL.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Beach Soap Co., Lawrence.** | | | | | | |
| Webster Grain Co .... | Lawrence ..... | 12.51 | — | 8.43 | — | 10.12 |
| **Swift's Lowell Fertilizer Co., Boston.** | | | | | | |
| A. E. Lawrence & Son | Ayer ..... | 25.71 | 20-25 | 4.67 | 3-10 | 58.50 |

## MILK PRODUCTS.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Geo. L. Harding, Binghamton, N. Y.** | | | | | | |
| Gran. Milk,.....A. E. Lawrence & Son | Ayer ..... | 36.15 | 43-50 | 6.47 | 15-20 | 27.04 |

## POULTRY MASH AND MEAL.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Local Mixtures.** | | | | | | |
| Morning Mash,...W. E. Bryant & Co.... | Brockton ..... | 20.32 | 14.00 | 6.09 | 5.00 | 6.19 |
| Rees W. Davies ..... | Greenfield..... | 26.28 | — | 4.60 | — | 7.95 |
| O. K.,.....C. H. Felker..... | Brockton ..... | 14.53 | 11.88 | 4.78 | 4.89 | 3.65 |
| S. B. Green & Co..... | Watertown .... | 21.59 | — | 6.45 | — | 6.28 |
| S. B. Green & Co..... | Watertown .... | 22.29 | 20.00 | 6.08 | 5.00 | 7.45 |
| Green & Co ..... | Marblehead ... | 11.14 | 11.00 | 5.07 | 3.00 | 6.39 |
| D. F. Howard ..... | Ware ..... | 18.16 | 15.00 | 3.77 | 5.00 | 8.59 |
| Lexington Grain Co .. | Lexington ..... | 22.33 | 18.00 | 3.94 | 3.50 | 11.91 |
| Livingston Grain Co.. | Lowell ..... | 17.38 | 10.00 | 5.88 | 6.08 | 3.00 |
| Malden Grain Co..... | Malden..... | 16.18 | — | 4.29 | — | 9.39 |
| Hash,.....Ropes Bros..... | Salem..... | 15.09 | 18.00 | 4.17 | 4.00 | 4.38 |
| L. M. Stanbridge ..... | Greenfield .... | 23.78 | — | 5.37 | — | 8.60 |
| Tyler Grain Co..... | Hyde Park .... | 12.64 | 11.32 | 6.39 | 8.47 | 4.22 |
| F. F. Woodward & Co. | Fitchburg ..... | 15.71 | 11.00 | 4.68 | 3.00 | 4.77 |

## POULTRY MASH AND MEAL—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Ash. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **Chas. M. Cox Co., Boston.** | | | | | | |
| Wirthmore,.....W. J. Meek..... | Fall River .... | 21.41 | 20.00 | 3.56 | 3.00 | 7.44 |
| Wirthmore,.....Dennison Plummer Co | New Bedford.. | 20.09 | 20.00 | 2.77 | 3.00 | 11.16 |
| **Albert Dickinson Co., Chicago.** | | | | | | |
| Queen,.....J. F. Ray..... | Franklin ..... | 11.93 | 10.50 | 3.18 | 3.00 | 3.62 |
| **R. D. Eaton Gr. & Feed Co.,Norwich,N.Y.** | | | | | | |
| Perfection, .....Prentiss, Brooks & Co. | Easthampton.. | 22.99 | 20.00 | 3.36 | 4.00 | 10.24 |
| **Green River Grain Co., Greenfield.** | | | | | | |
| W. N. Potter & Sons.. | Greenfield..... | 17.16 | 16.46 | 3.63 | 4.14 | 4.41 |
| W.N. Potter Sons & Co | Northampton.. | 15.84 | 16.46 | 3.54 | 4.14 | 4.08 |
| A. D. Potter..... | Orange..... | 15.77 | 16.46 | 3.69 | 4.14 | 3.82 |
| **Husted Milling & Elevator Co., Buffalo.** | | | | | | |
| B. W. Brown ..... | Concord..... | 15.40 | 12-14 | 6.43 | 4-5 | 3.79 |
| Laying Mash, ....F. E. Smith ..... | Amherst ..... | 15.75 | 15-17 | 4.49 | 3-4 | 3.40 |
| Laying Mash, ....H. L. Patrick..... | Hopedale ..... | 16.23 | 15-17 | 4.76 | 3-4 | 3.37 |
| **H-O Milling Co., Buffalo.** | | | | | | |
| Algrane, .....W. J. Meek..... | Fall River .... | 18.34 | 17.00 | 5.28 | 5.50 | 3.22 |
| Algrane, .....H. Bruckman..... | Lawrence ..... | 18.03 | 17.00 | 4.81 | 5.50 | 3.42 |
| **Park & Pollard Co., Boston.** | | | | | | |
| Dry Mash, .....Hathaway & McKenzie | New Bedford.. | 22.39 | 20-23 | 3.11 | — | 16.33 |
| Fattening Feed, ..Bedford Coal & Gr. Co | Bedford..... | 9.74 | 10.00 | 1.98 | 3.00 | 1.95 |
| Fattening Feed, ..F. Diehl & Son..... | Wellesley ..... | 10.14 | — | 2.73 | — | 2.67 |
| Growing Feed,....Hathaway & McKenzie | New Bedford.. | 14.17 | 14-15 | 3.07 | 3.5-4 | 4.26 |
| Growing Feed,....Taunton Grain Co.... | Taunton..... | 17.81 | 14-15 | 3.83 | 3.1-4 | 2.68 |
| **Purina Mills, St. Louis.** | | | | | | |
| W. E. Bryant & Co ... | Brockton..... | 17.57 | 17.00 | 1.65 | 2.50 | 4.05 |
| **Quaker Oats Co., Chicago.** | | | | | | |
| American,.....A. T. Butler..... | Adams ..... | 13.32 | 14.50 | 5.72 | 4.50 | 2.65 |
| American,.....J. F. Hunt..... | Lynn..... | 13.51 | 12-14.5 | 6.02 | 3-4.75 | 3.00 |
| American,.....D. H. Craig ..... | Plymouth ..... | 13.04 | 12-14 | 5.19 | 3.5-4.5 | 2.91 |
| **Spratt's Patent, Ltd., Newark, N. J.** | | | | | | |
| Patent,.....E. J. Adams ..... | Gt. Barrington. | 19.74 | 20.00 | 3.16 | 3.50 | 3.52 |

## CHICK AND SCRATCHING GRAINS.

| | | | | | | |
|---|---|---|---|---|---|---|
| Chick. | | | | | | |
| **Buffalo Cereal Co., Buffalo.** | | | | | | |
| F. H. Crane & Son.... | Quincy Adams. | 12.29 | 12.50 | 2.01 | 2.00 | 1.50 |
| **Chas. M. Cox Co., Boston.** | | | | | | |
| Wirthmore Gritless,Dennison Plummer Co | New Bedford.. | 11.97 | 11.00 | 2.90 | 3.00 | — |

## CHICK AND SCRATCHING GRAINS—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Ash. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **E. Crosby & Co., Brattleboro, Vt.** | | | | | | |
| Rees W. Davies ..... | Greenfield..... | 11.32 | 11.00 | 2.17 | 3.00 | — |
| **Thos. W. Emerson, Boston.** | | | | | | |
| Gem,.....Chas. G. Jordon ..... | Weymouth .... | 11.23 | — | 3.25 | — | 2.16 |
| **Great Western Cereal Co., Chicago.** | | | | | | |
| Sterling, .....G. F. Wetherbee Est. . | Gardner..... | 9.83 | 12.00 | 2.81 | 3.00 | — |
| **Green & Co., Marblehead.** | | | | | | |
| Green & Co ..... | Marblehead ... | 12.64 | — | 4.82 | — | — |
| **Green River Grain Co., Greenfield.** | | | | | | |
| W. N. Potter & Son .. | North Adams.. | 10.53 | 11-12 | 3.98 | 3.5-4.5 | — |
| **Husted Milling & Elevator Co., Buffalo.** | | | | | | |
| Chick Cr'k'd Corn, HoosacVal.C'l & Gr.Co | Adams ..... | 8.34 | — | 2.84 | — | — |
| **Park & Pollard, Boston.** | | | | | | |
| Gritless,.....Hathaway & McKenzie | New Bedford.. | 11.01 | 13.76 | 2.56 | 2.77 | — |
| **Purina Co., St. Louis.** | | | | | | |
| Star, .....W. E. Bryant & Co. .. | Brockton ..... | 9.92 | 9.00 | 3.63 | 3.00 | 9.43 |
| N. Paquin & Sons..... | Fall River .... | 12.11 | 11.00 | 4.22 | 3.60 | 2.18 |
| P. W. Eaton & Co.... | Williamstown.. | 11.49 | 11.00 | 3.75 | 3.60 | — |
| **Moses H. Rolfe Est., Newburyport.** | | | | | | |
| M. H. Rolfe Est..... | Newburyport .. | 10.36 | 12.50 | 3.00 | 4.00 | — |
| **Ross Bros., Worcester.** | | | | | | |
| Wyandotte,.....Brown Bros ..... | Northbridge... | 8.95 | 8.25 | 2.48 | 2.25 | 13.04 |
| Wyandotte,.....I. J. Rowell..... | Pepperell..... | 9.65 | 8.25 | 2.41 | 2.25 | 11.98 |
| **Springfield Flour & Grain Co., Springfield** | | | | | | |
| Spring'd Flour & Gr.Co | Springfield .... | 11.02 | 11.00 | 2.13 | 3.00 | — |
| **H. K. Webster Co., Lawrence.** | | | | | | |
| High Grade Cereal, H. K. Webster Co..... | Lawrence ..... | 10.32 | 12.00 | 2.87 | 3.00 | — |
| Scratching Grains. | | | | | | |
| **Local Mixtures.** | | | | | | |
| Buckwheat,.....W. S. Harrington .... | Adams ..... | 10.79 | — | 2.40 | — | — |
| Buckwheat,.....N. Paquin & Son..... | Fall River .... | 10.23 | — | 2.39 | — | — |
| Wheat Screenings, C. G. Jordan ..... | Weymouth .... | 16.14 | — | 3.14 | — | — |
| Blended Grains, ..W. E. Bryant & Co... | Brockton ..... | 10.27 | — | 3.29 | — | — |
| E. A. Cowee & Co.... | Worcester..... | 10.62 | 10.00 | 2.87 | 3.00 | — |
| Green & Co ..... | Marblehead ... | 12.07 | 10.00 | 3.69 | 2.00 | — |
| W.H.Cunningh'm&Son | Malden..... | 10.44 | 10.00 | 3.16 | 2.00 | — |
| Cutler Co..... | S. Framingham | 10.32 | 10.00 | 2.76 | 3.00 | — |
| W. P. Griffen..... | Pittsfield ..... | 10.62 | — | 3.75 | — | — |
| HoosacVal.C'l & Gr.Co | Adams ..... | 10.44 | 10.09 | 3.06 | 3.17 | — |
| HoosacVal.C'l & Gr.Co | Adams ..... | 10.09 | — | 3.17 | — | 1.64 |

## CHICK AND SCRATCHING GRAINS—(Continued).

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Ash. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| **Local Mixtures** (Continued). | | % | % | % | % | % |
| Moses H. Rolfe..... | Newburyport.. | 11.19 | 12 50 | 4.31 | 4.00 | — |
| H. K. Webster Co.... | Lawrence ..... | 10.16 | 10.00 | 3.01 | 3.00 | — |
| H. K. Webster Co.... | Lawrence ..... | 9 92 | 10.00 | 3.14 | 3.00 | — |
| Veribest, .....F. F. Woodward & Co. | Fitchburg ..... | 11.32 | 11.00 | 3.95 | 3.00 | — |
| **Buffalo Cereal Co., Buffalo.** | | | | | | |
| Griffin Bros ..... | Fall River .... | 11.10 | — | 3.29 | — | — |
| **Chas. M. Cox Co., Boston.** | | | | | | |
| W. J. Meek ..... | Fall River .... | 10.36 | 10.00 | 3.19 | 3.00 | — |
| **Cutler Co., North Wilbraham.** | | | | | | |
| King, .....L. H. Kirk ..... | Wakefield..... | 11.06 | — | 3.01 | — | — |
| **Cyphers Incubator Co., Buffalo.** | | | | | | |
| Pigeon, .....S. B. Green & Co..... | Watertown .... | 12.34 | 10.59 | 3.80 | 3.57 | — |
| **Albert Dickinson Co., Chicago.** | | | | | | |
| Globe, .....J. F. Ray ..... | Franklin..... | 10 44 | 10.50 | 2.99 | 3.00 | — |
| Globe, .....Spring'd Flour & Gr.Co | Springfield .... | 10.05 | 10.00 | 2.56 | 3.00 | 13.60 |
| **General Flour & Feed Co., Buffalo.** | | | | | | |
| Honest, .....Patrons' Co-op. Assoc. | Lowell ..... | 11.06 | — | 2.85 | — | — |
| **Great Western Cereal Co., Chicago.** | | | | | | |
| Sterling, .....G. F. Wetherbee Est.. | Gardner..... | 10.27 | 11.00 | 3.68 | 3.00 | — |
| **Green River Grain Co., Greenfield.** | | | | | | |
| B. S. No. 2, .....A. D. Potter..... | Orange..... | 10.67 | 10-11 | 3.37 | 3.5-4.5 | — |
| B. S. No. 2,.....W. N. Potter Sons Co. | Northampton.. | 10.36 | 10-11 | 3.57 | 3.5-4.5 | 1.60 |
| **H-O Co., Buffalo.** | | | | | | |
| Algrane,.....W. J. Meek..... | Fall River .... | 11.37 | 11.00 | 3.21 | 3.50 | 1.76 |
| **Narragansett Mill. Co.,E.Providence,R.I.** | | | | | | |
| Chick Cr'k'd Corn,A. Culver Co..... | Rockland..... | 8.34 | — | 1.75 | — | — |
| **Park & Pollard Co., Boston.** | | | | | | |
| Intermediate, ....Thorne Bros..... | Millis ..... | 10.62 | 10.00 | 3.37 | 3.00 | — |
| Spring'd Flour & Gr.Co | Springfield .... | 11.01 | 10.00 | 4.39 | 3 00 | 2.10 |
| **Purina Mills, St. Louis.** | | | | | | |
| Mackenzie & Winslow | Fall River .... | 11.14 | 11.00 | 3.27 | 3.60 | — |
| Mackenzie & Winslow | Fall River .... | 11.49 | 11.00 | 3.40 | 3.60 | 1.84 |
| **Quaker Oats Co., Chicago.** | | | | | | |
| Schumacher's,....Prentiss, Brooks & Co. | Holyoke..... | 10.79 | 10.50 | 3.08 | 3.00 | 1.60 |
| **G. T. Savage Poultry Supply Co., Boston** | | | | | | |
| Intermediate, ....L. H. Kirk..... | Wakefield..... | 11.14 | 10-11 | 2.73 | 2.5-3 | — |
| Standard, .....C. H. Symmes..... | Winchester.... | 11.06 | 10-11 | 3.73 | 2.5-3 | — |

## CLOVER AND ALFALFA MEAL.

| Manufacturer or Jobber, Brand and Retailer. | Sampled at: | Protein. | | Fat. | | Fiber. |
|---|---|---|---|---|---|---|
| | | Found. | Guar. | Found. | Guar. | |
| | | % | % | % | % | % |
| **Amer. Alfalfa Mill. Co., Kansas City, Mo.** | | | | | | |
| American Alfalfa,..H. K. Webster Co..... | Lawrence ..... | 16.50 | 14.00 | 1.69 | 1.50 | 27.56 |
| **Cyphers Incubator Co., Buffalo.** | | | | | | |
| Mealed Alfalfa,...N. Tufts & Co..... | Somerville..... | 17.77 | 17.90 | 2.22 | 4.00 | 19 00 |
| **Thos. Emerson Co., Boston.** | | | | | | |
| Cut Clover,.....J. F. Kirk ..... | New Bedford.. | 11.06 | 12.00 | 2.45 | 2.00 | 25 27 |
| Cut Clover,.....J. Loring & Co ..... | Watertown .... | 11.45 | 12.00 | 2.51 | 2.00 | 25.19 |
| **Great Western Cereal Co., Chicago.** | | | | | | |
| Alfalfa, .....H. Bullikian..... | Franklin ..... | 15.44 | 14.00 | 1.34 | 3.00 | — |
| Alfalfa, .....Spring'd Flour & Gr.Co | Springfield .... | 14.57 | 14.00 | 1.17 | 3.00 | 34.70 |
| **Kansas Pure Alf. Mill. Co., Wichita, Kan.** | | | | | | |
| Alfalfa, .....Malden Grain Co ..... | Malden ..... | 14.83 | 16.00 | 1.24 | 2.02 | 32.01 |
| **Nebraska Alfalfa Mill Co., Lexington, Neb.** | | | | | | |
| Alfalfa, .....Curley Bros ..... | Wakefield..... | 15.32 | 14.00 | 1.47 | 1.50 | 27.75 |
| Alfalfa, .....Smith Feed Co ..... | Westfield..... | 15.88 | 14.00 | 1.49 | 1.50 | 28.46 |
| **Newton Alfalfa Mills, Newton, Kan.** | | | | | | |
| Alfalfa, .....A. E. Lawrence & Son. | Ayer ..... | 15.84 | — | 1.41 | — | 26.85 |
| **Purina Mills, St. Louis.** | | | | | | |
| City Mills Co..... | Holyoke..... | 18.16 | 16.00 | 1.90 | 2.00 | 25.31 |

## A TALK ABOUT THE INSPECTION.

### I. Protein Feeds.

**Cottonseed and Linseed Meal. Pages 7-10.**

At the present time cottonseed meal is scarce and high. It is believed, nevertheless, even at prevailing high prices to be an economical source of protein for milk production. Owing to its high protein and low carbohydrate content, it is not advisable to have the grain ration consist wholly of cottonseed meal but it forms an excellent mixture with many feeds especially those rich in starch and relatively low in protein.

Of the 53 samples reported, 17 fell below their guarantee in protein content. Of these, however, only 9 showed a discrepancy of more than 1 per cent.

While the chemical composition of the meal obtained from seed grown in 1908 was quite satisfactory, that obtained from this year's crop, judging from the samples already analyzed, promises to be of somewhat inferior quality. This is explained by some on the ground that early in the season many mills sold short and are now endeavoring to increase their output by the addition of hulls and linters.

The Inter-State Cottonseed Crushers' Association at its annual meeting held at Memphis, May 19-20-21, 1909, established the following rules for grading cottonseed meal:

Rule 12, Section 1. *Choice cottonseed meal* must be finely ground, perfectly sound and sweet in odor, yellow, free from excess of lint, and by analysis must contain at least 8 per cent of ammonia (41.00 per cent protein) or 49 per cent of combined protein and fat.*

Section 2. *Prime cottonseed meal* must be finely ground, of sweet odor, reasonably bright in color, yellow, not brown or reddish, free from excess of lint and by analysis must contain at least 7.50 per cent of ammonia (38.50 per cent protein) or 46 per cent of combined protein and fat.*

* The station endorses the ammonia or nitrogen but not the combined protein and fat guarantee as a basis for settlement. A lot of meal may contain the requisite 49, 46 or 43 per cent of combined protein and fat, but through faulty extraction or for some other reason, not the necessary nitrogen, ammonia or protein equivalent. Thus, if a 49 per cent combined guarantee should contain 11 per cent of fat, it would contain only 38 per cent of protein instead of the necessary 41 per cent. Inasmuch as cottonseed meal is purchased primarily for its nitrogen or protein, it is believed to be fairer to adhere to the nitrogen or protein content of the meal as a basis of settlement. In Massachusetts it is illegal to present a combined protein and fat guarantee.

Section 3. *Good cottonseed meal* must be finely ground, of sweet odor, reasonably bright in color, and by analysis must contain at least 7 per cent of ammonia (36.00 per cent protein) or 43 per cent of combined protein and fat.*

## Nitrogen, Ammonia and Protein Equivalents.

Nitrogen, ammonia and protein are relative terms as both ammonia and protein are determined from the nitrogen content of the meal.

One per cent of nitrogen equals 1.2 per cent ammonia equals 6.25 per cent of protein.

One per cent ammonia equals .83 per cent nitrogen equals 5.2 per cent protein.

One per cent protein equals .17 per cent nitrogen equals .20 per cent ammonia.

PERCENTAGES.

| Nitrogen. | | Ammonia. | | Protein. |
|---|---|---|---|---|
| 5.75 | equals | 7.00 | equals | 36.00 |
| 6.10 | " | 7.40 | " | 38.00 |
| 6.25 | " | 7.60 | " | 39.00 |
| 6.40 | " | 7.80 | " | 40.00 |
| 6.56 | " | 8.00 | " | 41.00 |
| 6.70 | " | 8.20 | " | 42.00 |
| 6.90 | " | 8.40 | " | 43.00 |

AVERAGE ANALYSES AND RETAIL PRICES.

| | High Grades. 1907. | Medium Grades. 1907. | High and Medium Grades. 1907. |
|---|---|---|---|
| No. Samples, | 20 | 56 | 76 |
| Protein (per cent), | 42.45 | 38.76 | 39.73 |
| Fat (per cent), | 9.11 | 9.05 | 9.07 |
| Price a ton, | $33.00 | $32.78 | $32.84 |

| | High Grades. 1908. | Medium Grades. 1908. | High and Medium Grades. 1908. |
|---|---|---|---|
| No. Samples, | 31 | 10 | 41 |
| Protein (per cent), | 43.07 | 39.19 | 42.12 |
| Fat (per cent), | 9.27 | 8.41 | 8.94 |
| Price a ton, | $32.18 | $32.20 | $32.19 |

| | High Grades. 1909. | Medium Grades. 1909. | High and Medium Grades. 1909. |
|---|---|---|---|
| No. Samples, | 32 | 21 | 53 |
| Protein (per cent), | 42.62 | 39.49 | 41.38 |
| Fat (per cent), | 8.60 | 8.23 | 8.46 |
| Price a ton, | $34.12 | $32.55 | $33.48* |

Two lots of low grade cottonseed meal were found which sold for substantially the same price as the high grade product. While these meals were properly guaranteed as to their content of protein and fat, their feeding value is not much over one-half that of choice meal. This inferiority is due to a liberal admixture of hulls which seriously decreases digestibility as well as protein and fat content.

Because of the exceptionally high prices now prevailing for cottonseed meal, buyers cannot be too careful in purchasing. They should carefully scrutinize the guarantee and make sure that 41 per cent protein is guaranteed for choice, 38.5 per cent for prime and 36 per cent for good meal. It is safer, when purchasing in car lots, to ask that a sample be submitted to the experiment station as a check on the guarantee. (For special instructions for sampling cottonseed meal see circular 25 issued by the station.)

*The linseed meals* analyzed were all of good quality. The demand for this product is evidently so great that the manufacturers are able to secure a price somewhat above that secured for other high grade concentrates. It is an excellent source of protein for the dairy ration and it is to be regretted that its cost prevents its general use by Massachusetts dairymen.

AVERAGE ANALYSES AND RETAIL PRICES.

*New Process.*

| | 1906. | 1907. | 1908. | 1909. |
|---|---|---|---|---|
| No. Samples, | 7 | 7 | 6 | 5 |
| Protein (per cent), | 35.82 | 35.89 | 35.09 | 37.35 |
| Fat (per cent), | 2.51 | 3.16 | 3.28 | 3.37 |
| Price a ton, | $32.46 | $32.67 | $33.50 | $36.00 |

*Old Process.*

| | 1906. | 1907. | 1908. | 1909. |
|---|---|---|---|---|
| No. Samples, | 19 | 12 | 9 | 11 |
| Protein (per cent), | 33.57 | 35.27 | 34.94 | 35.89 |
| Fat (per cent), | 7.76 | 7.71 | 6.73 | 6.22 |
| Price a ton, | $34.00 | $34.64 | $35.44 | $36.81 |

* It should be borne in mind that this is an average figure for the year just past and that at present cottonseed meal is bringing a much higher price.

*Flax Feed*, so called, is in reality ground flax screenings. Its chemical composition and character are uncertain, depending upon the relative amounts of inferior flaxseed and weed seeds present. The weed seeds impart to the material a bitter taste. While it may be fed in limited amounts mixed with high grade feed stuffs, it cannot be placed in the same class. Its commercial value is also decidedly less.

**Gluten Feed.**
**Pages 10-12.**

Gluten feed, next to the wheat by-products, continues to be one of the most generally distributed concentrated feeds. The past season the samples examined have been almost without exception quite uniform in composition and entirely free from harmful adulteration. The slightly low protein content in a few instances can be attributed to a faulty separation of starch or to an inferior corn. It is hoped that the recent prosecution by the Federal authorities of a manufacturer for placing upon the market gluten feed falling noticeably below its guarantee, will have a salutary effect upon those manufacturers who, in years previous, have offered a product bearing a higher guarantee than the feed could maintain. In so far as the writer has been able to judge the gluten feeds now offered show less acidity than in years past. This condition was referred to at length in our last bulletin.

Coloring matter is still used in certain brands of gluten feed. The amount employed is evidently so small as not to be injurious and feeds thus treated are usually so marked in accordance with the National Food and Drugs Act. The practice of coloring, while it appeals to the whims of consumers, is to be regretted as it in no way improves the quality of the feed ; buyers are urged to be governed not by color but by the guarantee, taste and mechanical condition of the feed stuff.

AVERAGE ANALYSES AND RETAIL PRICES.

| | 1907. | | 1908. | | 1909. | |
|---|---|---|---|---|---|---|
| | First Grade. | Second Grade. | First Grade. | Second Grade. | First Grade. | Second Grade. |
| No. Samples, | 52 | 16 | 46 | 31 | 50 | 5 |
| Protein (per cent), | 25.97 | 21.52 | 25.52 | 21.22 | 26.52 | 21.83 |
| Fat (per cent), | 3.23 | 4.53 | 2.83 | 3.04 | 2.81 | 4.63 |
| Price a ton, | $30.76 | $31.83 | $32.48 | $32.66 | $32.68 | $32.00 |

**Distillers' and Brewers' By-Products. Pages 12-13.**

*Distillers' Dried Grains* consist of the dried residue from the manufacture of distilled spirits from corn, rye and other cereal grains. As the process of manufacture utilizes practically all of the starch contained in the seed, the residue is relatively low in this ingredient and high in protein, fat and fiber. The better product is derived from corn and should contain from 30 to 33 per cent protein and from 10 to 14 per cent fat. On account of their bulky nature these grains can be used in the place of wheat bran for lightening the grain ration and they may be considered an economical source of protein. It is believed that a higher guarantee than can be easily maintained is often placed upon distillers' grains. These grains were not found very generally distributed.

AVERAGE ANALYSES AND RETAIL PRICES.

| | 1906. | 1907. | 1908. | 1909. |
|---|---|---|---|---|
| No. Samples, | 22 | 27 | 17 | 18 |
| Protein (per cent), | 29.85 | 31.03 | 30.21 | 30.54 |
| Fat (per cent), | 11.75 | 12.35 | 8.25 | 11.69 |
| Price a ton, | $28.18 | $30.72 | $32.89 | $34.00 |

*Malt sprouts* are obtained from barley in the process of malting and consist of the barley sprout together with more or less hulls, light barley and occasionally a considerable number of weed seeds, When sprouts are fairly free from ash, dirt, hulls and weed seed they usually form an economical concentrate. If fed in any considerable amount (more than 2 lbs. daily) they should be moistened before feeding.

With one exception the samples collected were of good quality. One sample fell some 4 percent below its protein guarantee and also contained an unusually large amount of fiber.

AVERAGE ANALYSES AND RETAIL PRICES.

| | 1906. | 1907. | 1908. | 1909. |
|---|---|---|---|---|
| No. samples, | 6 | 13 | 9 | 13 |
| Protein (per cent), | 27.66 | 25.91 | 27.61 | 26.88 |
| Fat (per cent), | 1.61 | 1.20 | 0.89 | 1.08 |
| Price a ton, | $21.13 | $23.56 | $26.75 | $27.67 |

*Brewers' grains* are not extensively used locally, most of the grains finding an outlet abroad or as a component of molasses and other proprietary feeds. The five samples collected were of good quality and maintained their guarantees.

AVERAGE ANALYSES AND RETAIL PRICES.

| | |
|---|---|
| No. samples, | 5 |
| Protein (per cent), | 26.86 |
| Fat (per cent), | 7.09 |
| Price a ton, | $29.75 |

**Wheat By-Products. Pages 14-17**

The wheat by-products are found on the market far in excess of all other kinds of feed. They are dependable, safe and with few exceptions free from adulteration. Wheat feeds do not come under the requirements of the Massachusetts Feeding Stuffs Law, therefore it has been thought best, in order to save space, to tabulate the results somewhat differently from the method followed for other feed stuffs.

*Flour Middlings.* Under this heading is grouped red dog flour together with middlings containing a considerable proportion of flour. Standard middlings are often put upon the market and offered as flour middlings. A good grade of flour middlings forms an excellent and economical source of digestible carbohydrates (starchy matter) as well as protein. They are particularly valuable when used with a feed deficient in starch such as distillers' grains. The quality of the samples reported was quite satisfactory.

*Standard Middlings* were, as a whole, of good quality. Several samples containing ground screenings and one sample containing ground corn cobs are reported under the head of adulterated wheat feeds. These feeds were tagged to conform to the law and the buyer could not be deceived if the guarantee was noted.

*Wheat mixed feeds* should contain, with the exception of the screenings, all the by-products of the flour mill. In actual practice, however, the term appears to be rather elastic and occasionally includes feeds which appear to be much like finely ground wheat bran. It is believed that some brands of wheat mixed feed are compounded of bran, middlings and low grade flour instead of being a mixture of the entire by-products of the flour mills. There is no

reason why such a product, if carefully mixed in correct proportions, should not be just as valuable for feeding purposes as the entire "mill run" article. A satisfactory grade of wheat mixed feed is to be preferred to wheat bran, both as regards digestibility and protein content.

*Wheat bran*, on account of its bulky nature and safe feeding qualities, will continue to be used as a component of many grain rations. It is, however, a comparatively expensive protein feed on account of its relatively low digestibility. The fact that a number of reputable manufacturers are now marking their wheat bran as containing "bran and screenings" should not be taken to indicate that they are putting out a less desirable product than formerly. It is understood that a great deal of the bran offered has contained more or less of the screenings of the wheat, from which the bran is a by-product. This method of marking is intended simply to conform to the requirements of the National Pure Food Law. Excessive amounts of screenings in bran must be considered as an objectionable adulteration.

AVERAGE ANALYSES AND RETAIL PRICES.

Wheat Middlings, Flour.

| | 1906. | 1907. | 1908. | 1909. |
|---|---|---|---|---|
| No. samples, | 26 | 16 | 28 | 20 |
| Protein (per cent), | 17.67 | 17.62 | 17.16 | 16.98 |
| Fat (per cent), | 4.83 | 4.76 | 4.69 | 4.87 |
| Price a ton, | $25.79 | $30.39 | $32.80 | $33.56 |

Wheat Middlings, Standard.

| | 1906. | 1907. | 1908. | 1909. |
|---|---|---|---|---|
| No. samples, | 35 | 28 | 47 | 43 |
| Protein (per cent), | 17.30 | 16.78 | 17.14 | 17.53 |
| Fat (per cent), | 5.39 | 5.30 | 5.09 | 5.29 |
| Price a ton, | $24.62 | $28.50 | $31.02 | $30.04 |

Wheat Mixed Feed.

| | 1906. | 1907. | 1908. | 1909. |
|---|---|---|---|---|
| No. Samples, | 67 | 97 | 133 | 124 |
| Protein (per cent), | 16.29 | 16.35 | 16.19 | 16.49 |
| Fat (per cent), | 4.71 | 4.86 | 4.65 | 4.74 |
| Price a ton, | $23.99 | $28.93 | $31.12 | $30.17 |

Wheat Bran.

| | 1906. | 1907. | 1908. | 1909. |
|---|---|---|---|---|
| No. samples, | 31 | 58 | 52 | 38 |
| Protein (per cent), | 15.11 | 15.60 | 15.47 | 15.92 |
| Fat (per cent), | 4.77 | 4.89 | 4.53 | 4.57 |
| Price a ton, | $23.18 | $29.67 | $29.40 | $28.65 |

**Adulterated Wheat Feeds. Page 18.**

Under this heading are grouped wheat middlings, containing screenings, as well as middlings and wheat mixed feeds containing ground corn cobs. So far as is known these feeds, when offered for sale in Massachusetts, are tagged to conform to the requirements of the statute and no one need be deceived as to their true composition.

AVERAGE ANALYSES AND RETAIL PRICES.

| | Middlings and Screenings Aloras Brand. | Standard Middlings for Comparison. | Middlings and Ground Corncobs. |
|---|---|---|---|
| No. samples, | 3 | 43 | 1 |
| Protein (per cent), | 16.59 | 17.53 | 11.93 |
| Fat (per cent) | 7.19 | 5.29 | 2.64 |
| Price a ton, | $27.67 | $30.04 | $30.00 |

| | Adulterated Mixed Feed. | High Grade Mixed Feed for Comparison. |
|---|---|---|
| No. samples, | 9 | 124 |
| Protein (per cent), | 11.69 | 16.49 |
| Fat (per cent), | 3.05 | 4.74 |
| Fiber, | 14.48 | 8.20* |
| Price a ton, | $28.00 | $30.17 |

It has been found by actual experiment that a high grade wheat mixed feed contains 73 percent of digestible matter while wheat feed adulterated with cob contains only 62 percent; hence, on the basis of digestible matter if genuine wheat feed is worth $30.17, adulterated wheat feed would be worth only $25.54 per ton.

**Dairy Feeds. Pages 18-19.**

Under the head of dairy feeds are classed those compounded proprietary feeds which contain several by-products and show 15 or more percent protein. They are usually recommended as a complete grain ration for dairy stock. Such mixtures

*Average 732 samples.

ought not to contain over 9 to 10 percent of fiber. Many feeds of this character are sold at such high prices that the economical feeder will not use them.

*A. B. C. cattle feed*, of which but one sample was collected, fully maintained its guarantee, but was bitter and hence unpalatable.

*Unicorn dairy ration*, according to the manufacturer's statement, contains wheat gluten (glutola), corn gluten feed, cottonseed meal, hominy meal, linseed meal, malt sprouts, and wheat bran. This feed fully maintained its guarantee. The six samples collected gave the following average percentage composition: protein 27.03, fat 6.30, fiber 8.81. The average price was $32.67 per ton. It is an excellent feed of its kind but is a trifle high in protein to be fed by itself. The addition of 2 pounds of corn meal to each 5 pounds of the dairy feed would make a more satisfactory ration.

*Union grains*, according to the manufacturer's statement, contain corn, distillers' grains, cottonseed meal, linseed meal, wheat middlings, wheat bran, hominy meal, malt sprouts and a small percentage of salt. This feed fully maintained its guarantee. The six samples collected gave the following average percentage composition: protein 25.07, fat 7.05, fiber 10.06. The average price was $33.00 per ton. It is an excellent feed of its kind.

*Ubiko horse feed* fully maintained its guarantee. It was clean and sweet, contained no inferior offal and could be considered an economical concentrate for horses.

*Buffalo creamery feed* maintained its guarantee, the average analysis being protein 20.96 percent, fat 5.48 percent, fiber 8.14 percent. At an average price of $34.50 per ton it could hardly be considered an economical feed.

*Bibby's oil cake feed* is an imported product consisting largely of ground cottonseed, carob bean, cereals or their by-products, fenugreek and salt. It resembles in chemical composition standard wheat middlings and has approximately the same feeding value. This feed is quite favorably known in England but is not used extensively in this country. It could not be considered a perfect balanced ration for dairy animals.

*Algrane milk feed*, because of its high fiber and relatively low protein content, could not be considered an ideal dairy ration. The average analysis for the three samples collected was as follows: pro-

tein 18.60 percent, fat 3.94 percent, fiber 12.43 percent, and the average price was $33.00.

*Ropes horse feed* was a local product of good quality, and fully maintained its guarantee.

*Paragon dairy feed* contained a large proportion of cottonseed meal together with other by-products.

*Farmers' Friend feed*, according to the manufacturer's statement, contains cottonseed meal, Buffalo gluten feed, linseed meal, malt sprouts, distillers' grains, bran and hominy meal. On account of the high percentage of protein the use of this would furnish the dairyman an opportunity of utilizing home grown corn. Three pounds of corn meal daily together with five pounds of this feed would make, it is believed, a satisfactory ration. The price asked was $33.00 per ton.

**Molasses Feeds. Pages 19-20.**

The number of brands of molasses feeds offered for sale in the Massachusetts market is increasing. Practically all of the molasses feeds consist of second grade cereal grains or their by-products and grain screenings (all of which aid in absorbing the added molasses), together with one or more high grade concentrates used to increase the protein content. On account of the nature of their composition they sell for somewhat less than many feeds found in the retail market.

*Alfalmo feed* consisted of alfalfa meal as an absorbent to which molasses has been added. The sample examined could not be considered as valuable as wheat bran for feeding, although it sold for about the same price.

*Sucrene dairy feed*, according to the statement required by law, consists of cottonseed meal, oats, barley, wheat, grain screenings, molasses and one-half per cent salt. The formula of the Sucrene horse feed is probably quite similar except for a less amount of cottonseed meal.

The Sucrene feeds collected averaged as follows :

| | Sucrene Dairy Feed. | Sucrene Horse Feed. |
|---|---|---|
| No. samples, | 4 | 3 |
| Protein (per cent), | 16.88 | 10.46 |
| Fat (per cent), | 4.76 | 2.71 |
| Fiber (per cent), | 11.96 | 9.95 |
| Price a ton, | $28.75 | $29.67 |

*Best of All Dairy Feed* maintained its guarantee, but was very bitter. A microscopic examination showed it to contain a large number of unground weed seeds.

*Husted's Molasses Feed*, of which three samples were collected, averaged as follows:

| | |
|---|---|
| Protein (per cent), | 16.98 |
| Fat (per cent), | 3.28 |
| Fiber (per cent), | 7.93 |
| Price a ton, | $30.33 |

*Badger Dairy Feed* fell slightly below its protein guarantee.

AVERAGE ANALYSIS.

| | |
|---|---|
| No. samples, | 3 |
| Protein (per cent), | 15.77 |
| Fat (per cent), | 4.47 |
| Fiber (per cent), | 11.85 |
| Price a ton, | $27.67 |

*Sugarota Feeds* varied very much in fiber content, several samples containing an excessive amount, probably due to the presence of flax bran. Consumers are advised against purchasing feeds containing large amounts of fiber.

AVERAGE ANALYSIS.

| | Dairy Feed. | Horse Feed. | Swine Feed. |
|---|---|---|---|
| No. samples, | 6 | 1 | 1 |
| Protein (per cent), | 17.69 | 15.27 | 17.03 |
| Fat (per cent), | 6.61 | 5.26 | 6.55 |
| Fiber (per cent), | 14.92 | 19.27 | 13.06 |
| Price a ton, | $28.80 | $29.00 | $28.00 |

*Molac Dairy* and *Quaker Molasses Feed* were both products of the Quaker Oats Co. The Molac is no longer manufactured. The fiber content of the Quaker feed is too high to render its use economical.

AVERAGE ANALYSIS.

| | Molac. | Quaker. |
|---|---|---|
| No. samples, | 3 | 2 |
| Protein (per cent), | 13.98 | 16.40 |
| Fat (per cent), | 2.78 | 2.87 |
| Fiber (per cent), | 11.26 | 13.20 |
| Price a ton, | $28.67 | $28.00 |

*Hammond's Dairy Feed*, according to the manufacturer's statement, contains corn, oats, barley, distillers' grains, cottonseed meal, grain screenings, malt sprouts, and pure cane molasses. The formula for Hammond's Horse Feed was probably quite similar, except that the protein concentrates were present in less amounts. The horse feed exceeded its protein guarantee by about 4 per cent.

AVERAGE ANALYSIS.

| | Dairy Feed. | Horse Feed. |
|---|---|---|
| No. samples, | 2 | 1 |
| Protein (per cent), | 16.52 | 13.30 |
| Fat (per cent), | 4.37 | 2.35 |
| Fiber (per cent), | 10.71 | 11.99 |
| Price a ton, | $28.00 | $30.00 |

But one sample each of *Consolidated*, *Daisy*, *Harvard*, *International* and *Regal Molasses Feeds* was collected. They practically maintained their guarantees, and were of average quality.

**Calf Meals. Pages 20-21.**

Five varieties of this material are reported. They are intended as a whole or partial substitute for milk in the feeding of young calves. All of these meals will undoubtedly serve as a partial milk substitute for calves intended for dairy purposes, after three weeks from birth. The station is giving some attention to this matter.

## II. Starchy (Carbohydrate) Feeds.

**Ground Grains. Pages 22-23.**

*Corn Meal.* Forty-one samples of corn meal were reported. The entire ground corn kernel is referred to in many localitles as corn chop, while the term corn meal is applied to the milled product, from which most of the bran and a little of the protein matter have been separated. This distinction is not generally recognized by the smaller Massachusetts millers. A number of the samples here reported refer to the milled or bolted product. It has a more attractive appearance than the straight ground kernel, but has somewhat less protein and fat. For the feeding of animals the writer prefers the entire corn kernel ground. In one instance it is believed that some ground cob had been added by a Massachusetts miller. The party has been cautioned.

AVERAGE ANALYSIS.

| | |
|---|---|
| No. samples, | 41 |
| Protein (per cent), | 8.85 |
| Fat (per cent), | 3.59 |
| Fiber (per cent), | 1.88 |
| Price a ton, | $30.79 |

*Ground oats.* Eight samples of ground oats were analyzed, all of which were free from adulteration. The highest fiber content was that obtained from a sample of whole oats which was of an exceptionally fine appearance.

**Hominy Meal.**
**Pages 23-25.**

Hominy meal is a pure corn by-product, from which part of the seed has been removed in the manufacture of hominy and brewers' grits. It has substantially the same feeding value and can be substituted for corn meal wherever the latter can be used to advantage. It contains slightly more protein and considerably more fiber and fat than clear corn, and correspondingly less starchy matter. In every case, so far as determined, the hominy collected was free from adulteration except in the case of the Star brand, in which the fact that this article contained ground corn cob was plainly stated upon the guarantee tag.

The average retail prices as given by dealers showed that hominy meal sold for about one dollar per ton more than corn meal. The Star brand brought practically the same price as corn meal, but could not be considered as valuable. It does not show good business sense to pay $30.00 or more per ton for an article containing ground cobs in any considerable proportion.

AVERAGE ANALYSES AND RETAIL PRICES.

| | 1906. | 1907. | 1908. | 1909. |
|---|---|---|---|---|
| No. samples, | 63 | 40 | 47 | 51 |
| Protein (per cent), | 10.54 | 10.71 | 10.20 | 11.21 |
| Fat (per cent), | 8.48 | 8.25 | 7.79 | 8.61 |
| Price a ton, | $24.32 | $27.50 | $31.88 | $31.72 |

*Star Feed.*

| | |
|---|---|
| No. samples, | 5 |
| Protein (per cent), | 8.87 |
| Fat (per cent), | 6.39 |
| Fiber (per cent), | 9.47 |
| Price a ton, | $30.75 |

**Corn and Oat Feeds. Pages 26–28.**

*Provender.* Thirty samples of provender were examined. It is believed that they were free from adulteration. On account of the relative price of corn and oats, millers occasionally use considerably more corn than oats. The average analysis of 17 samples of ground oats showed an average fiber content of 8.47 per cent. The average fiber content of 93 samples of corn meal was 1.9 per cent. A mixture of corn and oats, whose fiber content closely approaches that of oats, may fairly be regarded as adulterated with oat residues made up largely of oat hulls.

*Corn and Oat Feeds.* Under this heading are grouped mixtures containing corn or hominy meal, together with oat hulls, light oats and oat middlings. Other cereals and by-products are occasionally present, but no mixtures are included which contain over 12 per cent protein. When such feeds are free from mold and rancidity, and do not contain over 10 per cent fiber, they can often be profitably used in the feeding of horses, but they are not economical constituents of the dairy ration. With one exception, these mixtures ranged in price from $29 to $34 a ton. The Imperial feed retailed for $40, and was a straight corn and oat product, in which the corn predominated.

Provender, as the term is understood locally, means a mixture of straight corn and oats ground together. The term as used in connection with Oneonta corn and oat provender is misleading, the latter being a mixture of corn together with oat by-products. Charlestock, Special, Red Tag A, Red Tag B, De Fi and New England Stock feeds, while they contained over 12 per cent fiber, indicating the presence of a large amount of oat hulls, sold for as much as feeds which contained less of the latter material.

**Fortified Starchy Feeds. Page 29.**

Under this heading are grouped those feeds consisting of some carbohydrate or starchy base, usually corn and oat residues, to which has been added a little high grade protein concentrate in order to increase the protein percentage. These mixtures contain from 12 to 15 per cent protein. They are intended, more particularly, for horses, and if *clear* and *sweet* can be considered reasonably satisfactory as an oat substitute. The price asked was about the same as for the corn and oat feeds. The station does not recommend them as economical for dairy animals.

**Oat Feeds.**
**Page 30.**

Oat feed is a by-product of the breakfast food factories, and consists largely of oat hulls together with more or less oat middlings, light oats, sweepings and chaff. It is usually very low in protein and quite high in fiber. Such material is often used by local millers as a component of provender or other mixtures. The price asked for oat feed is usually considerably in excess of its feeding value. Its value, comparatively speaking, is no greater than that of an average quality of hay.

**Alfalfa Feeds.**
**Page 29.**

Here are classified feeds which contain more or less ground alfalfa, the use of which as a component of feed mixtures is becoming quite common. *Feeders cannot afford to pay grain prices for alfalfa hay*, it being decidedly more economical to purchase the high grade concentrates unmixed, and to depend for roughage upon home grown English, alfalfa and clover hays, and corn silage.

*Corno Horse and Mule Feed*, with alfalfa as a component, fell only slightly below its guarantee of 10 per cent protein, and 3.50 per cent fat. The average analysis of two samples collected was protein 9.46 per cent, fat 3.64 per cent, and fiber 13.56 per cent.

*Kornfalfa Feed* consists of alfalfa, corn and oats. This sample fell below its guarantee but, according to the statement of the manufacturers, it represented one of the early shipments, and the guarantee is now maintained.

*Sylva Stock Food* has been withdrawn from the market.

*Otto Wiess Alfalfa Stock Food*, according to a statement on the tags, is made up of alfalfa, corn chop, bran, shorts, linseed oil meal, and three-fourths of a per cent of salt. It practically maintained its guarantee of protein and fat.

*Otto Wiess Alfalfa Oat Food* consisted of alfalfa, oats, corn chop, bran, linseed oil meal and three-fourths of a per cent of salt. It maintained its guarantee of protein and fat, and our examination substantially confirms the statement of composition.

These feeds ranged in price from $34 to $38 a ton, and must be considered very expensive as a feed for dairy stock. Neither are they particularly economical as an oat substitute for horses.

**Miscellaneous Feeds. Page 30.**

*Mellen's Dried Grains* are the by-product from the manufacture of Mellen's Food. At the price quoted, $23 a ton, they could be considered fairly economical.

*Barley Feed* is evidently a by-product bearing the same relation to barley that oat feed does to ground oats. It was not guaranteed.

*Feed Barley* has a composition somewhat resembling oats. Next to oats, barley is considered a most satisfactory feed for horses. Feed barley is frequently imperfectly developed and likely to be a little moldy; such a product is better suited for poultry.

*Husted Germaline* is a proprietary feed quite rich in soluble carbohydrates. The analysis showed it to be quite similar to corn meal in composition, and fully as valuable for feeding.

*Dried Beet Pulp* is the dried residue remaining after the extraction of the juice from the sugar beet in the manufacture of beet sugar. One ton of dried pulp is substantially equivalent to five tons of average corn silage. Placing a value of $20 on five tons of silage, a ton of dried pulp should not cost more, whereas its present selling price is $26. It is believed not to be good economy for farmers to buy pulp in place of home-grown silage.

A ton of dried pulp has from 80 to 90 per cent of the feeding value of an equal amount of corn meal. When the supply of home-grown corn is exhausted or limited, beet residue, plain or mixed with molasses, may be substituted for fattening or as one-third of the grain rations for dairy animals; the balance of the grain ration should consist of protein concentrates. Before feeding, the dried pulp should be moistened with two to three times its weight of water.

## III. Poultry Feeds.

**Animal By-Products. Pages 31-33.**

*Meat Scrap*s. A good grade of meat scrap should be free from taint and should not contain an excess of bone, moisture or fat. The poultryman who purchases meat scrap can readily satisfy himself in regard to the freshness of the article, and should also note the guarantee of protein and fat. The samples reported in this bulletin differ very greatly in composition, and the buyer will do well to note the analyses given.

Blue Ribbon scraps formerly tested over 80 per cent of protein. One sample collected recently tested about 65 per cent and bore a 60 per cent guarantee. It seems probable that these goods do not have the same composition as when first placed on the market.

*Rava Meat Meal* deserves special mention in that it is practically pure, dried lean meat.

*Meat and Bone Meals* are preferred by some poultrymen. They contain considerably more bone than meat scrap, and sell at a lower figure. The samples reported practically maintained their guarantee, but showed a noticeable variation in chemical composition.

**Poultry Mashes and Meals. Pages 33-34.**

Many of the poultry mashes offered are mixed locally, and are not generally distributed. They sold at an average figure of about $2.00 per hundred. It is believed that fully as satisfactory mixtures can be prepared at home at a saving of twenty cents or more per hundred pounds. Following are several sample mashes which, in the writer's estimation, will prove equally as satisfactory as the commercial mixtures.

FOR MATURE BIRDS.

| I. | II. |
|---|---|
| 20 lbs. wheat bran, | 50 lbs. wheat bran, |
| 40 lbs. corn meal, | 100 lbs. corn meal |
| 10 lbs. fine middlings, | 75 lbs. wheat middlings, |
| 10 lbs. linseed meal, | 75 lbs. cut clover or alfalfa. |
| 10 lbs. gluten feed, | |
| 10 lbs. meat scraps. | |
| Cost per hundred, $1.65. | Cost per hundred, $1.53. |

FOR YOUNG CHICKS.

| | |
|---|---|
| 60 lbs. corn meal, | 10 lbs. linseed meal, |
| 10 lbs. wheat bran, | 10 lbs. beef scrap (fine). |
| 10 lbs. flour middlings, | |

Cost per hundred, $1.65.

**Chick and Scratching Grains. Pages 34-36.**

Eighteen samples of chick feed were collected, most of which were free from an excessive amount of weed seed and grit. In a number of instances it is believed that the mixture would have been improved were less millet present. Star Chick Feed contained grit and a considerable amount of weed seed. Wyandotte Chick Feed contained grit. In both instances the buyer was paying grain prices for crushed stone. Grit was not

noted in any of the other feeds. It can be obtained at a much lower cost in the form of finely crushed oyster shell, gravel or coarse sand.

Thirty samples of scratching grains, two samples of buckwheat and one sample of wheat screenings are reported. The Globe Scratch Feed was the only sample found to contain grit and oyster shells. A sample of the same brand collected later was free from these materials. Geeen's, Purina and Standard brands contained an objectionable amount of weed seed. The seeds most generally used in compounding these scratching grains are corn, Kaffir corn, wheat, barley, oats, buckwheat and sunflower. Peas, charcoal, millet, cracked linseed cake, grit, oyster shells, flax seed, rye, wheat screenings, milo maize, hulled oats and meat scrap were also found in some of the samples. The price asked averaged about $2 per hundred. A mixture consisting of ½ cracked corn, ¼ wheat and ¼ barley would probably be as satisfactory, and would not cost over $1.75 per hundred if home mixed.

**Alfalfa Meal.**
**Page 37.**

Nine samples of alfalfa meal and two samples of cut clover are reported. The better grades of alfalfa and clover meals should not contain over 25 per cent of fiber. Two of the samples contained over 30 per cent, indicating that they were over-ripe when cut or else many of the leaves had been lost through faulty curing. Early cut clover or alfalfa carefully dried makes an excellent food for winter feeding.

## WEED SEEDS IN MOLASSES FEEDS,

Since the advent of molasses feeds and the extensive use of grain screenings as a component, much has been written against their use, not only on account of the possible toxic effect of the seeds, but principally because of the likelihood of bringing many undesirable and pernicious weeds onto the land through the medium of manure. Some manufacturers state that before the seeds are used, their germinating power has been largely destroyed. The claim is also made that molasses feeds contain no more weed seeds than are often found in hay and oats. Admitting the partial truth of this statement, it is also true that they certainly do contain many more than the high grade concentrates such as cottonseed meal, linseed meal, gluten feed and the wheat by-products. On account of unfavorable

comments, manufacturers have attempted to further destroy the viability of the weed seed by grinding the screenings, and most of the feeds now offered contain fewer whole seeds than formerly.

We have attempted to determine approximately the total number of seeds, as well as the number germinating in a definite amount of molasses feeds collected in the Massachusetts markets during the winter of 1909, and the results follow in tabular form:

TABULATED DATA.*

| Name of Feed. | Whole Seeds per pound. | Number Germinating. | Per Cent Germinating. |
|---|---|---|---|
| Badger Dairy | 725 | none | none |
| Badger Dairy | 453 | none | none |
| Best of All | 3356 | 1451 | 40 |
| Consolidated | 272 | none | none |
| Daisy | 272 | none | none |
| Husted's | 544 | none | none |
| International | 1179 | 635 | 54 |
| Molac Dairy | 2086 | 453 | 22 |
| Molac Dairy | 816 | none | none |
| Payne's Alfalmo | 90 | none | none |
| Regal | none | none | none |
| Sucrene Dairy | 1360 | 272 | 20 |
| Sucrene Dairy | 1542 | 635 | 41 |
| Sucrene Dairy | 2540 | 635 | 25 |
| Sucrene Horse | 2177 | 272 | 13 |
| Sugarota Dairy | 3175 | 816 | 23 |
| Sugarota Dairy | 3175 | 635 | 20 |
| Sugarota Dairy | 997 | 272 | 27 |
| Sugarota Dairy | 1270 | 544 | 43 |
| Sugarota Horse | 816 | 272 | 33 |
| Sugarota Swine | 2449 | 1179 | 48 |

* This work was done by G. H. Chapman, assistant botanist at the station.

RESULTS OF THE WORK.

1. The different feeds varied to a considerable extent in whole weed seed content, as did also different samples of the same brand. This condition depended not only upon the character of the material used, but also upon the thoroughness of grinding.

2. It is worthy of remark that of the twenty samples found to contain weed seed, seven showed none that germinated, and in no case did over one-half of the seed sprout.

3. The seeds identified were crabgrass, foxtail, bindweed, ladies' thumb, lambs' quarters, charlock, wild turnip, plantain, common sorrel, dock and tumbleweed.

4. It should be remembered that, with few exceptions, feeds of this character are mixtures of inferior material with that of recognized value; the intelligent purchaser should not be led to consider such mixtures of equal worth with high grade concentrates.

5. Our results indicate that most molasses feeds contain fewer whole seeds than formerly, and that their germinating power has been noticeably reduced. At the same time the present condition in case of most of the feeds is far from satisfactory.

## WEIGHT OF SACKED FEEDS.

From time to time the experiment station has been requested by jobbers in feeding stuffs to make check weights on sacked feeds. Up to this time but little attention has been given to this matter, but data recently secured show that while the Massachusetts law states *explicitly* that the *net weight* of each package should be attached the practice has been with very few exceptions to state gross weight as net.

When feed stuffs sold for $15 a ton, and less, the difference in value between net and gross weight of sacked feeds amounted to comparatively little, but at present the "value difference" is much greater. According to the statement of a large bag manufacturing concern, the average weight of a new sack such as is ordinarily used for 100 pounds of feed, is 11 to 11¼ ounces. The sacks used for a ton of feed would, therefore, weigh about 14 pounds, and those used for a twenty-ton car would weigh about 280 pounds. Two hundred and eighty pounds of feed at $32 a ton, would be worth $4.48.

The difference between net and gross weight was not the only variation noted, and it is believed that in several instances the cause of the short weights observed was due to gross carelessness, if not to intentional deception. The variations in weight of sacked feeds can probably be accounted for by some of the following reasons:

1. Carelessness in sacking.
    a. Failure to check automatic scales.
    b. Allowing scales to get out of adjustment.
    c. Loss from sacks after weighing and before sewing.

2. Change in moisture content of the feed. In this case, even where the original weighing is correct, if a considerable time elapses before it reaches the consumer a shrinkage in weight may occur.

Where feeds are sacked directly from the drier the feedstuff may take on several pounds of water on standing. Molasses feeds may shrink in weight due to drying out. It should be remembered, however, that in the case of a feed which contains any considerable amount of water at the time of weighing, the consumer is paying grain prices for water or at the rate of about 3 cents a quart.

3. A loss in weight due to handling and shipping, caused by an occasional torn sack and to sifting, accounts for a slight shrinkage. Cottonseed meal is often shipped in second hand and inferior sacks, in which case the loss is likely to be quite pronounced.

4. A deliberate attempt to give short weight, and consumers should be on their guard against such deception.

Here follows a summary of the net weights on a number of ton lots of feed stuffs weighed by experiment station officials on retailer's sealed scales:

SUMMARY.

| | KIND OF FEED. | Total weight a ton. (lbs.) | Highest weight single sack (lbs.) | Lowest weight single sack (lbs.) | Average single sack (lbs.) | Excess for one ton. (lbs.)* | Shortage for one ton. (lbs )* |
|---|---|---|---|---|---|---|---|
| 1 | Cottonseed meal.... | 1989.75 | 100.50 | 99.00 | 99.49 | — | 24.25 |
| 2 | " " .... | 1984.50 | 100.00 | 98.50 | 99.23 | — | 29.50 |
| 3 | " " .... | 1969.25 | 103.00 | 96.50 | 98.47 | — | 44.75 |
| 4 | O. P. Linseed meal. | 1991.00 | 100.00 | 99.00 | 99 55 | — | 23.00 |
| 5 | Gluten feed..... | 2014.00 | 103.00 | 97.00 | 100.70 | — | — |
| 6 | " " ..... | 2004.50 | 101.50 | 99.00 | 100.23 | — | 9.50 |
| 7 | Distillers' grains.... | 2028.50 | 107.50 | 93.75 | 101.43 | 14.50 | — |
| 8 | Wheat middlings... | 2014.00 | 101.50 | 99.50 | 100.70 | — | — |
| 9 | " " ... | 2011.00 | 102.00 | 99.00 | 100.55 | — | 3.00 |
| 10 | " " ... | 2015.75 | 101.00 | 100 25 | 100.79 | 1.75 | — |
| 11 | Wheat mixed feed.. | 2011.00 | 102 00 | 99.50 | 100.55 | — | 3.00 |
| 12 | " " " .. | 1968.75 | 101.50 | 96.00 | 98.44 | — | 45.25 |
| 13 | " " " .. | 2016.00 | 101.25 | 100.25 | 100.80 | 2.00 | — |
| 14 | Wheat bran..... | 2008.00 | 101.50 | 99.00 | 100.40 | — | 6.00 |
| 15 | " " ..... | 2009.25 | 101.50 | 100.00 | 100 42 | — | 4.75 |
| 16 | Dairy feed..... | 1999.75 | 100.25 | 99.50 | 99.99 | — | 14.25 |
| 17 | Molasses feed..... | 1916.75 | 100.50 | 89.75 | 95.84 | — | 97.25 |
| 18 | Hominy feed..... | 2007.00 | 101.50 | 99.00 | 100.35 | — | 7.00 |
| 19 | Corn and oat feed.. | 2018.00 | 102.50 | 97.50 | 100.90 | 4.00 | — |
| 20 | " " " " .. | 1998.25 | 101.00 | 99.00 | 99.92 | — | 15.75 |
| 21 | " " " " .. | 2040.50 | 103.00 | 101.00 | 102.00 | 36.50 | — |

* Taking 2014 lbs. as the weight of gross ton (feed 2000 lbs plus sacks 14 lbs.)

The three lots of cottonseed meal all ran low. It is known that two lots were packed in new sacks carefully sewn. Allowing a value or $36 per ton, or 1.8 cents per pound, the money loss on the three lots would be 44, 53 and 81 cents per ton.

The one lot of linseed meal weighed ran 23 lbs. short., the average weight of a sack being only 99.5 lbs.

The two lots of gluten feed were quite uniform, and there was evidently an attempt to give one ton net weight.

Distillers' grains showed an excess of 14¼ lbs. Different bags of this material tend to vary very much in weight, in this instance there being a difference of about 14 lbs. between the weight of the heaviest and lightest sack. It is believed that these wide variations were due to careless weighing.

With one exception the weights on the wheat by-products were very satisfactory. Lot No. 12, which ran 45 lbs. short, was found in the same storehouse as lot No. 11.

In the one lot of dairy feed, No. 16, an attempt was evidently made to give gross weight, as the average weight per sack was about 100 lbs.

The lot of molasses feed fell nearly 100 lbs. short, with an average weight of about 96 lbs. per sack.

The lot of hominy weighed was quite satisfactory.

Of the three lots of corn and oat feeds, No. 19 was evidently weighed net and No. 20 gross. No. 21 ran 36 lbs. over, with an average of 102 lbs. per sack, evidently an instance of manufacturer's scales out of adjustment.

On account of the small amount of data presented, it would not be wise to draw too positive conclusions. The results indicate, however, that gross weight is quite often given in place of net; and further, that carelessness, if not intentional deception, are not uncommon. It is the intention of the experiment station to follow this matter more closely in the future.

## AN OPEN LETTER ABOUT LOW-GRADE BY-PRODUCTS.

J. B. Lindsey.

### (a) WHAT THEY ARE AND THEIR FEEDING VALUE.

Under this classification may be mentioned oat and barley residues, cottonseed hulls, rice hulls, wheat and flax screenings, and ground corn cobs.

*Oat and barley residues*, which consist of grain hulls, middlings and mill sweepings, contain from 50 to 75 per cent of hulls and have from 40 to 60 per cent of the feeding value of corn meal.

*Cottonseed hulls* contain very little protein, some 40 per cent of fiber, and are quite indigestible. They are sold in the South at from $6 to $8 a ton, and are in no way economical for Northern feeders.

*Rice hulls* are very low in protein, high in ash and fiber, and are digested with great difficulty. They are not suited for feeding purposes, creating a serious irritation of the membranes of the stomach and intestines. They should never be incorporated into cattle or horse feeds.

*Wheat screenings* contain the small shrunken wheat kernels, pieces of straw, grain hulls and a great variety of weed seeds. They are quite bitter and must have an inferior nutritive value. Their wholesale price in large lots is about $16 a ton, Boston basis. Unless the viability of the seeds is destroyed by heating or grinding, the use of such material is in no way advised.

*Flax screenings* are similar to wheat screenings excepting that the inferior wheat kernels are replaced by imperfectly developed flax seed. They likewise contain more protein and fat than the screenings from wheat, and have a somewhat greater nutritive value.

*Ground corn cobs* contain 2 to 3 per cent of protein and over 30 per cent of fiber. While they possess some nutritive value derived from the fiber and extract matter, they are decidedly out of place as a component of any reputable proprietary grain mixture.

### (b) THEIR USE IN PROPRIETARY FEEDS.

One has only to study the pages of this bulletin or of similar publications put out by other experiment stations, to note the large and ever increasing number of proprietary feeds offered for sale. These mixtures may be classed under such general heads as dairy feeds,

molasses feeds, and corn and oat or stock feeds. Nearly all of these mixtures *contain one or more of the several by-products in varying amounts.* Thus, most of the dairy feeds contain oat residues as a prominent constituent; the molasses feeds have both oat residues and grain screenings as components; the corn and oat, or stock feeds contain large amounts of the cereal residues together with more or less corn, often of an inferior quality; while the alfalfa feeds have ground alfalfa as a basis. Rice hulls have been rarely found in feeds offered in Massachusetts. Ground corn cobs are mixed with wheat bran and sold under such names as Indiana, Jersey and Blue Grass mixed feeds. To the unobserving the ground cob, when thus mixed, may be taken for wheat middlings. In case of adulterated wheat bran the nature of the addition is stated upon the tag, and the buyer has only himself to blame if he purchases and pays full prices for such material.

It seems evident, from the large number of mills engaged in the manufacture of proprietary feeds, that the industry must be a profitable one. There is no reason why particular attention should be called to the sale of any of the above mentioned by-products,* providing they are sold for just what they are and at prices commensurate with their value. When, however, they are disguised and incorporated into mixtures for which extravagant claims are made, and when as a result of such claims they are sold at prices above their real value, it is time that attention should be called to the fact. Furthermore, it is believed that local dealers *make a much greater profit* on feeds of this kind than on staple grains and high-grade by-products. This, in a measure, explains their wide distribution. Why, Mr. Dairyman, are you willing to pay $30 to $35 per ton for feeds containing large amounts of oat hulls, inferior corn, ground corn cobs, and grain screenings? It is surely much more economical to buy clear wheat middlings, corn meal, distillers' grains, gluten feed and cottonseed meal. Such goods are sold on a minimum margin of profit. *Is the dairy business so profitable, or are you so generous, that you are willing to pour your surplus gold into the coffers of dealers and manufacturers of this class of feed stuffs. Just think of this matter seriously!!*

* Rice hulls excepted.

## TYPES OF BALANCED RATIONS.

By J. B. Lindsey.

Because of the high prices of all concentrated feeds, dairymen are frequently in doubt as to the kinds to be selected and the amount to be fed in order to secure the best returns for the money invested. Farmers selling cream to the creamery, or located where there is not a quick demand for milk, probably will not find it economical to feed over 5 pounds of purchased grain daily, and will use maximum amounts of hay and silage (1 to 1½ bushels of silage and what hay the animal will eat clean). If the silage is well eared, 1½ pounds each of cottonseed meal and flour middlings, sprinkled over the silage to distribute it, will produce a fairly well balanced ration, and prove helpful in maintaining the milk flow. If corn meal is a home product rather than silage, mix by weight ¼ bran, ½ corn and cob meal and ¼ cottonseed meal (100 pounds bran, 200 pounds corn and cob meal and 100 pounds cottonseed meal), and feed 5 to 6 quarts daily, together with one feeding of cut or shredded corn stover and what hay the animal will clean up.

Producers of market milk generally find it advisable to feed somewhat more grain, and a number of combinations are suggested which will produce satisfactory balanced rations when fed with what hay the animal will eat clean (18 to 24 pounds a day), or with one bushel of corn silage and 10 to 16 pounds of hay.

I.

125 lbs. bran.
100 lbs. flour middlings.
100 lbs. gluten feed.
Mix and feed 6 to 8 lbs. (7 to 9 qts.) daily.

II.

125 lbs. bran.
100 lbs. corn or hominy meal.
100 lbs. cottonseed meal.
Mix and feed 6 to 8 lbs. (7 to 9 qts.) daily.

III.

100 lbs. wheat bran.
100 lbs. gluten feed.
35 lbs. cottonseed meal.
Mix and feed 7 lbs.( 8 to 9 qts.) daily.

IV.

125 lbs. malt sprouts.
100 lbs. corn or hominy meal.
125 lbs. gluten feed.
Mix and feed 7 lbs. (6½ to 7 qts.) daily.

V.

75 lbs. wheat bran.
150 lbs. corn and cob meal.
100 lbs. cottonseed meal.
Mix and feed 6 to 8 lbs. or quarts daily.

VI.

100 lbs. distillers' grains.
100 lbs. malt sprouts.
150 lbs. corn meal.
50 lbs. cottonseed meal.
Mix and feed 7 lbs. (7 to 8 qts.) daily.

VII.

150 lbs. distillers' grains.
150 lbs. standard middlings.
100 lbs. corn or hominy meal.
Mix and feed 7 lbs. or qts. daily.

VIII.

150 lbs. wheat bran.*
200 lbs. gluten feed.
Mix and feed 7 lbs. (8 to 9 qts.) daily.

IX.

200 lbs. dried brewers' grains.
100 lbs. corn meal.
50 lbs. cottonseed meal.
Mix and feed 7 lbs. (9 qts.) daily.

X.†

300 lbs. bran.
100 lbs. flour middlings.
100 lbs. corn meal.
100 lbs. ground oats.
300 lbs. gluten feed.
100 lbs. linseed meal.
Mix and feed as desired.

The cost of a pound of the several mixtures at the present time is from 1.5 to 1.6 cents. It is believed that the above selections are more economical on the basis of their content of nutritive material than most of the sugar feeds and other proprietary mixtures.

In general, it may be said that the *amount of grain* to be fed daily depends (a) upon the size of the cow, (b) daily milk yield, and (c) the local market value of the milk. The richer the milk, the more food is required to produce a given amount; and *vice versa.*

*Seven pounds* of the above mixtures is a fair average amount for cows weighing 800 to 900 pounds, which are yielding 10 quarts of 4 per cent milk. For every 2 quarts of milk yielded in excess of this amount the grain ration may be increased by one pound.

### RATIONS FOR YOUNG STOCK.

Young dairy stock may receive one peck or more of silage daily, depending upon their size, in addition to what hay, corn stover or other coarse fodder they will eat clean; or the entire roughage may consist of hay. Grass and clover rowen form a very desirable feed for growing animals. In addition to the above, it is usually advisable to feed from 1 to 3 pounds daily of a grain mixture reasonably rich in protein and ash.‡ Any of the above mixtures will prove satisfactory. The writer has found mixtures by weight of ½ wheat bran and ½ flour middlings; or ½ bran, ¼ corn meal and ¼ flour middlings; or even ½ bran and ½ corn meal, quite satisfactory. A ration composed of late-cut hay and corn meal would not be desirable, it lacking both in flesh and bone forming material (protein and ash).

* Malt sprouts can be substituted for one-half the bran if prices warrant it.

† Ration designed for cows on test; rather expensive for ordinary purposes.

‡ If the roughage consists largely of grass or clover rowen, two pounds daily of a mixture of bran and corn meal, or even of corn meal alone, will prove satisfactory.

## MARKET PRICES OF CATTLE FOODS FOR 1909.

| FEED STUFFS. | Monthly Wholesale Ton Prices—1909. | | | | | | | | | | | | Average. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jan. | Feb. | March. | April. | May. | June. | July. | Aug. | Sept. | Oct. | Nov. | Dec. | |
| Cottonseed Meal | $29.25 | $29.56 | $29 94 | $31 75 | $33.88 | $32.44 | $30.65 | $31.00 | $31.75 | $33.32 | $34.25 | $35.00 | $31.90 |
| Linseed Meal (N. P. and O. P.) | 32.19 | 32.44 | 33.09 | 33.10 | 33.08 | — | — | — | 33.50 | 33 75 | 34.50 | 35.45 | 33.46 |
| Gluten Feed (sacked) | 30.80 | 30.90 | 30.90 | 29.54 | 28.50 | 29.75 | 29.94 | 30.10 | 30.85 | 30.35 | 29 85 | 30.67 | 30 18 |
| Gluten Feed (bulk) | 29.40 | 29.40 | 29.40 | 27.76 | 27.47 | 28.71 | 28.90 | 29.28 | 29.81 | 29 48 | 28.90 | 29.49 | 29.00 |
| Distillers' Dried Grains | 32.75 | 33.00 | 33.00 | 32.25 | 31.25 | 31.50 | 31.50 | 31.38 | 31.38 | 31.75 | 31.88 | 33.00 | 32.05 |
| Malt Sprouts (sacked) | — | 25.00 | 25.35 | 23.25 | 23.21 | 23.54 | 24.00 | — | — | — | — | — | 24.06 |
| Flour Middlings (Red Dog) | 30.81 | 31.19 | 31.50 | 31.55 | 32.56 | 33.31 | 33.15 | 32.81 | 32.20 | 31 63 | 30.06 | 30.35 | 31.76 |
| Standard Middlings (shorts) | 27.01 | 28.47 | 28.50 | 28.83 | 30.19 | 29.26 | 27.80 | 26.76 | 26.43 | 26.38 | 26.22 | 27.13 | 27.75 |
| Mixed Feed | 27.85 | 29.10 | 29.72 | 29.60 | 30.94 | 30.38 | 28.90 | 27.66 | 27.15 | 26.94 | 26.63 | 27.35 | 28.52 |
| Bran, Spring | 24.88 | 27.31 | 27.73 | 27.70 | 29.06 | 27.31 | 25.50 | 24.25 | 24.25 | 24.13 | 24 13 | 25 55 | 25.98 |
| Bran, Winter | 25.88 | 27.69 | 28.31 | 28.65 | 30.50 | 29.19 | 25.95 | 24.56 | 24.50 | 24.38 | 24 94 | 26.10 | 26.72 |
| Hominy Meal (sacked) | 28.48 | 28 53 | 28.90 | 28.93 | 31.26 | 31.35 | 31.04 | 30.04 | 29.45 | 28.25 | 28.34 | 28.22 | 29.40 |
| Hominy Meal (bulk) | 27.85 | 27.13 | 27.40 | 27.65 | 29 90 | 30.56 | 29.82 | 28.98 | 28.65 | 26.98 | 26.92 | 27.34 | 28.27 |
| Corn Meal | 26.60 | 27.80 | 28.80 | 30.00 | 32.80 | 32.80 | 31.20 | 30.20 | 29.80 | 27.20 | 27 40 | 27.40 | 29.33 |
| Corn, No. 2 yellow | 25.06 | 26.70 | 27.24 | 29.17 | 30.76 | 30.74 | 29.70 | 28.81 | 28.63 | 25.63 | 26.67 | 25.53 | 27.89 |
| Oats, No. 2 clipped white | 36.50 | 37.88 | 38.81 | 39.19 | 41.13 | 41 88 | 37.94 | 32.44 | 29.19 | 29.63 | 29.75 | 31.38 | 35.48 |
| Rye, No. 1 | 30.35 | 31.02 | 33.20 | 33.52 | 34.66 | 36.06 | 33.56 | 28.20 | 27.95 | 29.10 | 29.99 | 29.99 | 31.47 |
| Feed Barley | 28.68 | 29.52 | 31.19 | 30.98 | 33 57 | 36.70 | 30.86 | 26.69 | 25.02 | 25.65 | 26.60 | 27.81 | 29.44 |